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SOME RESULTS OF DESULTORY COLLECTING OF INSECTS IN KANSAS AND COLORADO, ... *Elbert S. Tucker.*

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KANSAS UNIVERSITY SCIENCE BULLETIN.

VOL. IV, No. 2. MARCH, 1907. { WHOLE SERIES, VOL. XIV, No. 2.

SOME RESULTS OF DESULTORY COLLECTING OF INSECTS IN KANSAS AND COLORADO.

BY ELBERT S. TUCKER.

IN spite of the fact that a person may be regularly employed in entomological work, he may not have opportunities to do personal collecting of insects any more than one who is otherwise engaged. When one is steadily occupied throughout every working-day, only such time as comes outside of prescribed hours of work permits the undertaking of separate or distinct pursuits of individual concern or diversion. Nevertheless, a great deal can be accomplished in any line by improving odd periods of leisure. One advantage which entomology has over other studies in natural history is that collections of specimens can be made at night as readily as by day. Much spare time that can be utilized for day collecting is afforded during holidays, vacations, excursions or on visits; in fact, occasions frequently occur which invite the insect collector to go forth with net and bottles. Intervals of even an hour can be advantageously spent in this manner. Unlike the hunter or fisherman, he need not seek the wildest haunts in nature, for an abundance of varied forms generally await him ready at hand whether he is situated in country or city. Records of local collecting done even in a small way often have a value proportionate to those of more extensive collecting; besides, additional merit may be rendered if detailed particulars are given.

Little by little, here and there, whenever a chance is offered, by day or by night, considerable material will be accumulated in the course of a year or two by persistent collecting

of insects. The results of such efforts will mainly comprise an assortment of widely diversified forms rather than many representatives of any particular group, unless attention is devoted exclusively to certain kinds. No matter how disconnected one's operations may become regarding place, time or other conditions in collecting, the final outcome, through skilful classification of the specimens, can be presented with system and order.

What I consider as my personal collecting, to which all my records pertain, unless in reference to metatypes of two newly described species, has been done aside from any connection with the expeditions undertaken by Dr. F. H. Snow for the University of Kansas. Thus restricted, my efforts have been confined to portions of Kansas and Colorado, with the advantage, of course, in favor of my home locality, where night work was engaged in to a great extent. Only spare time in any instance has been thus employed. All of my specimens, with few exceptions in cases of common duplicates, have been added to the entomological collections of the University of Kansas, and from those that are identified I have prepared the following lists of their names, together with records regarding the capture of each species.

LIST OF HEMIPTERA-HETEROPTERA.

Wherever I have collected these insects, rich results were obtained, even at home. The greater part of my collecting in Colorado was done during a visit of six weeks, in the months of July and August, 1894, principally in Colorado Springs. All other collecting in this state has been done subsequently on trips of short duration. A list of the determinations of species in the order Hemiptera from my first collection in Colorado, and also some undetermined specimens, since all could not be readily identified at the time, were furnished to Profs. C. P. Gillette and C. F. Baker, at their request, by Mr. W. A. Snow, of the University of Kansas, thereby granting them the benefit of the results of study for incorporation in their work entitled "A Preliminary List of the Hemiptera of Colorado," which appeared as Bulletin No. 31 of the Colorado Agricultural Experiment Station. The extent to which

my specimens in the Heteroptera alone, were reported upon in this work is shown in the records of thirty species, where credit is given me in each case as the collector. In this number six capsids were described as new to science. The enumeration of all these species again, including all records of captures up to the present time, is embodied in my list herewith, which includes the names and data of twenty-eight other species taken in Colorado. Of this additional number, four species at least are new to the Colorado list, one being only now described. Another species whose identification now remains in doubt may eventually prove to be new also.

In respect to the Kansas part of the collecting, there are forty-eight species new to the state list which was begun by Prof. E. A. Popenoe, in Transactions of the Kansas Academy of Science, volume IX, pages 62, 63, and recently enlarged by Mr. F. F. Crevecœur, *loc. cit.*, volume XIX, pages 232–234.

Of the total number of species listed, nineteen were collected in both Kansas and Colorado, the number for Kansas alone being 108 species.

Many of the determinations cited in my list have been made by myself in the regular course of museum work, by comparison of the specimens in hand with named specimens already in the University collection. When this course was not possible for want of named material, or in cases of doubt, examples of the specimens being studied were submitted to eminent authorities according to their preference for certain groups; hence acknowledgments are due to Mr. E. P. Van Duzee, Mr. Otto Heidemann, and Mr. J. R. de la Torre Bueno, for their generous aid toward the entomological museum of the University of Kansas, to each of whom I am also indebted for personal favors.

The catalogue of Lethierry and Severin was first used as a guide for the arrangement of the Heteroptera, so far as that work treats of the families, although more recent changes in nomenclature are adopted. For advice concerning the nomenclature and arrangement of generic and specific names in the families omitted in this work, I was forced to seek special authorities. Mr. Heidemann kindly revised and arranged my list of the Capsidæ, and likewise in regard to the water-

bugs, as well as in other matters, I was generously aided by Mr. de la Torre Bueno. However, since the appearance of Mr. G. W. Kirkaldy's "List of the Genera of the Pagiopodous Hemiptera-Heteroptera," the positions of those families which he treats have been rearranged to conform with the rank in which he regards them.

EXPLANATION.—The figures 31 in parentheses (31) refer to personal credits, whether in part or in full, which are acknowledged in Bulletin 31, Colorado Agricultural Experiment Station.

Family PENTATOMIDÆ.

(Subfamily *Corimelæninæ.*)

Corimelæna nitiduloides Wolff. Kansas, Douglas county; May, July.—Colorado, Denver; August.

(Subfamily *Scutellerinæ.*)

Homæmus æneifrons Say. Colorado, Manitou; July (31).
bijugis Uhl. Colorado, Manitou; July.
grammicus Wolff. Colorado, Colorado Springs, August (31).

(Subfamily *Cydninæ.*)

Cydnus obliquus Uhl. Kansas, Douglas county; April. New to the Kansas list.

Pangæus uhleri Sign. Kansas, Douglas county; May, June, July, October. New to Kansas.

Amnestus pusillus Uhl. Kansas, Douglas county; May, at electric light on streets; July, at electric light on river bridge.

(Subfamily *Pentatominæ.*)

Brochymena quadripustulata Fab. Kansas, Douglas county; April; August, taken in thicket at Wakarusa river; August, on mulberry tree close to colony of web-worms; October. New to Kansas.

Peribalus limbolarius Stal. Kansas, Douglas county; April and August.

Pentatoma ligata Stal. Kansas, Douglas county; April and October. New to Kansas.

Mormidea lugens Fab. Kansas, Douglas county; June; July, twilight.

Œbalus pugnax Fab. Kansas, Sedgwick county; September, in pear orchard. Douglas county; November.

Euschistus tristigmus Say. Kansas, Douglas county; April; July, twilight (taken with variety).
tristigmus Say, var. pyrrhocerus H.-Schf. Kansas, Douglas county; July; July, twilight; August. New to Kansas.
variolarius Pal. de Beauv. Kansas, Douglas county; May; May, at electric light; July; August; October; October, at night.

Hymenarcys æqualis Say. Kansas, Douglas county; September, October.
nervosa Say. Kansas, Douglas county; July.

(Subfamils *Pentatominæ*.)

Menecles insertus Say. Kansas, Douglas county; April, November. New to Kansas.

Thyanta custator Fab. Kansas, Sedgwick county; May, in timber along Arkansas river; August, on farm. Douglas county; June; August, twilight.—Colorado, Garden of the Gods; July. Colorado Springs; August (31).

perditor Fab. Kansas, Douglas county; September, at electric light on river bridge.

Nezara hilaris Say. Kansas, Douglas county; June, at night.

(Subfamily *Asopinæ*.)

Podisus maculiventris Say (=spinosus Dallas). Kansas, Douglas county; March; May; July; July, twilight; August; November.

Family COREIDÆ.

Corynocoris distinctus Dallas. Kansas, Douglas county; June.

Archimerus calcarator Fab. Kansas, Douglas county; June; June, twilight. New to Kansas.

Acanthocephala instabilis Uhl. Kansas, Douglas county; October. New to Kansas.

terminalis Dallas. Kansas, Douglas county; June, October. New to Kansas.

Leptoglossus oppositus Say. Kansas, Douglas county; October; October, twilight; November; November, twilight. New to Kansas.

Chariesterus antennator Fab. Kansas, Sedgwick county; August.

Catorhintha mendica Stal. Kansas, Douglas county; July; July, twilight; November.—Colorado, Colorado Springs; August (31).

Anasa armigera Say. Kansas, Douglas county; July, twilight; August; October.

tristis De G. Kansas, Douglas county; April to November.

Protenor belfragei Hagl. Colorado, Manitou; July.

Megalotomus (Alydus) quinquespinosus Say. Colorado, Colorado Springs; August.

Alydus eurinus Say. Kansas, Douglas county; August. New to Kansas.

pilosulus H.-Schf. Kansas, Douglas county; August. New to Kansas.

pluto Uhl. Colorado, Colorado Springs; August.

Harmostes fraterculus Say. Kansas, Douglas county; August. New to Kansas.

reflexulus Stal. Kansas, Douglas county; May, at night.—Colorado, Colorado Springs; August (31).

Corizus hyalinus Fab. Colorado, Colorado Springs; August (31).

lateralis Say. Kansas, Douglas county; September.—Colorado, Colorado Springs; July.

nigristernum Sign. Kansas, Douglas county; May, July. New to Kansas.

sidæ Fab. Kansas, Douglas county; August, on cockle-bur blossoms. New to Kansas.

Serinetha trivittata Say. Kansas, Douglas county; April, on daffodils in bloom; October, all stages; November, all stages; noxious in entering houses in search of winter quarters.

Family BERYTIDÆ.

Jalysus spinosus Say. Kansas, Douglas county; June; June, twilight; July; August; October.—Colorado, Colorado Springs; July, August. Cheyenne canyon, July (31).

Family LYGÆIDÆ.

Oncopeltus fasciatus Dallas. Kansas, Douglas county; October.

Lygæus reclivatus Say. Kansas, Douglas county; May.—Colorado, Colorado Springs; August (31).

Nysius angustatus Uhl. Colorado, Garden of the Gods; July. Green Mountain Falls; July. Bear Creek canyon; July (31). Colorado Springs; August.

minutus Uhl. Kansas, Douglas county; July; August; August, at night. Sedgwick county; September. New to Kansas.—Colorado, Colorado Springs; August. Tabernash, August.

Belonochilus numenius Say. Kansas, Douglas county; November. New to Kansas.

Ischnorhynchus resedæ Panz. Colorado, Cheyenne canyon; July. Manitou; July (31, =didymus Zett.) Colorado Springs; August.

Ischnodemus falicus Say. Kansas, Douglas county; May.

Blissus leucopterus Say. Kansas, Douglas county; April; July; September, at electric light.

Geocoris ater Fab. (=uliginosus Say, erroneously fuliginosus). Kansas, Douglas county; April.

pallens Stal. Colorado, Colorado Springs; August.

Phlegyas annulicrus Stal. Kansas, Douglas county; May, at night. New to Kansas.

Œdancala dorsilinea Am. et Serv. (=dorsalis Say). Kansas, Douglas county; July.

Chiroleptes serripes Ol. Kansas, Douglas county; May; June, at electric light; July, at electric light; August, at electric light; December.

Orthæa (Pamera) basalis Dallas. Kansas, Douglas county; May, at night; September, at electric light.

The name of this species is omitted in Lethierry and Severin's catalogue, and the generic name has been changed by Mr. G. W. Kirkaldy.

Cnemodus mavortius Say. Kansas, Douglas county; July, at electric light.

Sphragisticus nebulosus Fal. Kansas, Douglas county; August, at night. New to Kansas.—Colorado, Manitou; July. Colorado Springs; August (erroneously accredited "Manitou Park," 31, =Trapezonotus).

Cryphula parallelogramma Stal. Kansas, Douglas county; June, twilight.

Eremocoris ferus Say. Kansas, Douglas county; August, October. New to Kansas.

Family PYRRHOCORIDÆ.

Largus cinctus H.-Schf. Colorado, Cheyenne canyon; August (31).

Family TINGIDÆ.

Piesma cinerea Say. Kansas, Douglas county; May, July, August.—Colorado, Colorado Springs; August (31).

Corythuca ciliata Say. Colorado, Green Mountain Falls; July.

fuscigera Stal. Colorado, Colorado Springs; August.

pergandei Heid. Kansas, Douglas county; May, at night (metatype); October. New to Kansas.

Family PHYMATIDÆ.

Phymata erosa Linne. Kansas, Douglas county; July, found clinging on back of drone-fly, *Eristalis tenax* Linne, which it had evidently captured; September.—Colorado, Colorado Springs; August (31, =fasciata Gray).

Family ARADIDÆ.

Aradus quadrilineatus Say. Kansas, Douglas county; May. New to Kansas.

Family REDUVIDÆ.

Oncerotrachelus acuminatus Say. Kansas, Douglas county; May. New to Kansas.

Pygolampis pectoralis Say. Kansas, Douglas county; June, at electric light; July, at electric light. New to Kansas.

Stenopoda culiciformis Fab. Kansas, Douglas county; July, at street lamp. New to Kansas.

Reduvius personatus Linne. Kansas, Douglas county; May, at night; June, at night; July; August. New to Kansas.

Melanolestes picipes H.-Schf. Kansas, Douglas county; April, frequent in house at night in lighted rooms; May; May, at electric light and at night.

Zelus luridus Stal. Colorado, Cheyenne canyon; July.

Acholla multispinosa De G. Kansas, Douglas county; July; July, twilight; August; September; October. New to Kansas.

Sinea diadema Fab. Kansas, Douglas county; September.

raptoria Stal. Kansas, Douglas county; June. New to Kansas.

Reduviolus ferus Linne. Kansas, Douglas county; April; June; June, twilight, at electric light and at night; July; November.—Colorado, Green Mountain Falls; July. Colorado Springs; July; August (31, =Coriscus).

pallescens Reut. Kansas, Douglas county; May, at night. New to Kansas.

rufusculus Reut. Colorado, Colorado Springs; August.

Family ANTHOCORIDÆ.

Anthocoris musculus Say. Colorado, Colorado Springs; August.

Triphleps insidiosus Say. Kansas, Douglas county; June; June, twilight; July; August.

Family CAPSIDÆ (MIRIDÆ).

(In this family Mr. Otto Heidemann has kindly arranged the names of the genera and species according to the latest systems of classification as advocated by Prof. O. M. Reuter in his work, "Hemipterologische Speculationen, Die Classification der Capsiden," 1905: Festschrift für Palmen No. 1; and also by Mr. G. W. Kirkaldy in "List of the Genera of the Pagiopodous Hemiptera-Heteroptera," 1906: Trans. Am. Ent. Soc., vol. XXXII, pp. 117–156. "In doing so," Mr. Heidemann writes, "I followed Professor Reuter in his phylogenetic arrangement of his divisions, but use the word "tribe" as a more appropriate term, and which is generally adopted now by the American systematists. I do not agree with Mr. Kirkaldy in his sweeping changes of nomenclature, which he proposes in some of his papers. I have retained the names of divisions or tribes in accordance with Professor Reuter's statements in his last work on the classification of the Capsidæ.")

(Tribe *Plagiognathini.*)

Sthenarus rubidus Uhl. Colorado, Colorado Springs; August (type, 31).

Reuteroscopus (Episcopus) ornatus Reut. Kansas, Douglas county; July, at night; August; September. Sedgwick county; September.—Colorado, Colorado Springs; August.

Psallus delicatus Uhl. Kansas, Douglas county; May. New to Kansas.

Plagiognathus obscurus Uhl. Kansas, Douglas county; August; August, at night; September.

politus Uhl. Kansas, Douglas county; June; June, twilight; July, at night; September. New to Kansas.

annulatus Uhl. Kansas, Douglas county; May; June, twilight; August. New to Kansas.

Chlamydatus (Agalliastes) associatus Uhl. Colorado, Colorado Springs; July, August. Garden of the Gods; July (31). Denver; August.

(Tribe *Oncotylini.*)

Megalocoleus (Macrocoleus) coagulatus Uhl. Colorado, Green Mountain Falls; July. Garden of the Gods; July. Colorado Springs; August.. Cheyenne canyon; July. Manitou; July.

Oncotylus sericatus Uhl. Colorado, Colorado Springs; July. Green Mountain Falls; July (cotypes, 31).

(Tribe *Cyllocorini.*)

Orthotylus flavosparsus Sahl. Kansas, Douglas county; July, August. New to Kansas.

diaphanus Kirsch. The identification was made by Mr. Heidemann as "probably" this species. Kansas, Douglas county; June, twilight. New to Kansas.

Orthotylus translucens, new species. Colorado, Cheyenne canyon, near Colorado Springs; July, 1894.

Elongate; minutely pubescent, more apparent on wing-covers than on body; legs and antennæ as well as the body uniform straw-yellow, probably grass-green when fresh, same as thickened portions of wings, which are mainly that color. Head rounded, smooth; eyes very prominent, black, somewhat deep-set above and below, narrowing the vertex, which has a faint triangular depression with the base formed against a narrow transverse ridge on posterior margin of the head. Tylus short and narrow, defined at base by a deep incisure between antennal insertions; rostrum slender, reaching well between the middle coxæ, black at extreme tip. First joint of antennæ somewhat stout, about as long as the vertical diameter of an eye; second joint slender and nearly four times as long as the first; others missing.

The pronotum widens obliquely backward, the posterior margin having nearly twice the expanse of the anterior which is about equal to the length, all margins straight; the anterior lobes are slightly rounded, the posterior ones curved and reflexed. Surface smooth and convex; a deep, narrow incision extends entirely across transversely just in front of the middle, at the center of which is a deep notch that separates two apparently large tumid callosities; collum compressed in front. Scutellum equal in length and breadth, smoothly convex, but divided into two unequal parts, the smaller basal portion being defined by an incision extending across and curving into the anterior angles.

(Tribe *Cyllocorini.*

Orthotylus translucens—*continued.*

Wings extend beyond the abdomen nearly half their length; unless faded, the thickened parts are translucent green, perhaps yellowish along costa, and all the veins are suffused with the general color; membranes are clear hyaline.

Abdomen somewhat elongate, less than half as wide as the thorax. The last joint of each tarsus, including the claw, is infuscated.

Length to tip of wings, 4.5 mm., to end of abdomen, 2.75 mm.; width of thorax, 1.25 mm. Described from a single male specimen collected by the author.

Mr. Otto Heidemann considers this specimen "near *prasinus* Fallen." The description of *O. viridicatus* Uhl. agrees very closely, the most notable distinction being black membranes of that species.

This specimen has remained so long unnamed, and, as authorities generally hesitate to describe and name a species from only one specimen, at least without retaining the specimen for type, I have taken the work on myself in naming and describing it, mainly to avoid listing a species as unknown. The type belongs to the collection of the University of Kansas. For the Colorado list.

METATYPES.—Four female specimens, collected by F. Rogers, Kansas City, Mo., May 13 and 20, on trunks of locust trees. In collection of University of Kansas. Those with complete antennæ have the joints proportioned as follows: First and second joints as described for type; third and fourth together a little longer than the second, slender, appearing slightly infuscated in certain lights. The head appears wider between the eyes than with the type, and the eyes above and below are not as deep-set; the rostrum fails to reach the middle coxæ; the abdomen is as wide as the thorax, and the wing membranes are very slightly dusky, but far from being black in any sense.

Ceratocapsus (Melinna) fasciatus Uhl. Kansas, Douglas county; August; August, at twilight. New to Kansas.

(Melinna) lutescens Reut. Kansas, Douglas county; August. New to Kansas.

Ilnacora (subgenus Corinala) stallii Reut. Kansas, Douglas county; May, June, August, September. New to Kansas.

(Sthenarops) chloris Uhl. Kansas, Sedgwick county; June. New to Kansas.

(Sthenarops) malina Uhl. Kansas, Douglas county; June. New to Kansas.

Malacocoris irroratus Say. Kansas, Douglas county; July.

Diaphnidia debilis Uhl. Colorado, Cheyenne canyon; July. Colorado Springs; August (metatypes, 31).

(Tribe *Dicyphini.*)

Hyaliodes vitripennis Say. Kansas, Douglas county; July.

Dicyphus californicus Stal. Colorado, Colorado Springs; August.

(Tribe *Labopini.*)

Lopidea confluens Say. Colorado, Colorado Springs; July, August. New to the Colorado list.

media Say. Kansas, Douglas county; June; June, twilight; July.

(Tribe *Cyllocorini.*)

Oncerometopus nigriclavus Reut. Colorado, Colorado Springs; either July or August (31); taken again in August of 1906.

Hadronema militaris Uhl. Colorado, Colorado Springs; August. Garden of the Gods; July (31).

picta Uhl. Colorado, Colorado Springs; July (types, 31).

Halticus uhleri Giard. Kansas, Douglas county; June, twilight; July, at night; July; August.

bractatus Say. Colorado, Colorado Springs; August. Bear Creek canyon; July.

Strongylocoris (Stiphrosoma) stygicus Say. Kansas, Sedgwick county; June. Douglas county; June; June, twilight and at night.

(Stiphrosoma) croceipes Uhl. Colorado, Colorado Springs; July, August.

(Stiphrosoma) robustus Uhl. Colorado, Tabernash; August

(Tribe *Capsini.*)

Lygus pratensis Linne. Kansas, Douglas county; March, April; June, twilight; August; September. Sedgwick county; April.—Colorado, Manitou; July. Green Mountain Falls; July. Colorado Springs; July; August (31).

distantii Atk. (= scutellatus Distant). Kansas, Douglas county; May, immature; July. New to Kansas.—Colorado, Colorado Springs; July; August. Green Mountain Falls; July. Denver; August. New to the Colorado list.

guttatipes Uhl. Colorado, Manitou; August (types, 31).

invitus Say, dark variety. Kansas, Douglas county; June. New to Kansas.

monachus Uhl., var. Kansas, Douglas county; May, June. New to Kansas.

plagiatus Uhl. Kansas, Douglas county; April. New to Kansas.

(Hadrodema) pulverulenta Uhl. Kansas, Douglas county; June, July, November.

Pœciloscytus basalis Reut. Kansas, Douglas county; June, July.—Colorado, Colorado Springs; August (31).

Pœcilocapsus lineatus Fab. Kansas, Douglas county; June.

Polymerus (Systratiotus) venaticus Uhl. Kansas, Douglas county; June; June, twilight.

(Systratiotus) americanus Reut., variety. Kansas, Douglas county; May.

Camptobrochis nebulosus Uhl. Kansas, Douglas county; June; July; July, twilight. Colorado, Manitou; July. Cheyenne canyon; July. Colorado Springs; August.

grandis Uhl. Kansas, Douglas county; June, twilight.

Calocoris rapidus Say. Kansas, Sedgwick county; August. Douglas county; June; June, at electric light.

superbus Uhl. Colorado, Colorado Springs; August.

Phytocoris eximius Reut. Colorado, Tabernash; August. New to the Colorado list.

interspersus Uhl. Colorado, Cheyenne canyon; July (type, 31).

(Tribe *Capsini.*)

Neurocolpus nubilus Say. Kansas, Douglas county; August. Colorado, Garden of the Gods; July. Colorado Springs; July (31).

Miridius, not recognizable. Kansas, Douglas county; August, at night. New to Kansas.

(Tribe *Garganini.*)

Garganus fusiformis Say. Kansas, Douglas county; August, twilight; September, at electric light. Fort Leavenworth; September.

(Tribe *Mirini.*)

Stenodema (Miris) instabilis Uhl. (= affinis Reut.) Kansas, Douglas county; April, June. New to Kansas.

Trigonotylus pulcher Reut. Colorado, Colorado Springs; July, August.

Miris (Leptoterna) amœna Uhl. Colorado, Manitou; July.

Callimiris tarsalis Reut. Kansas, Douglas county; July; August, at electric light. New to Kansas.

Family CLINOCORIDÆ.

Clinocoris lectularius Linne. Kansas, Douglas and Sedgwick counties.—Colorado, Colorado Springs; August (31, =Acanthia).

Family ACANTHIIDÆ.

Acanthia pallipes Fab. Colorado, Colorado Springs; July (31, =Salda).

Family GELASTOCORIDÆ (NERTHRIDÆ).

Gelastocoris sp. Colorado, Colorado Springs; August.

This specimen had been regarded as *oculatus* Fabricius, until it was examined by Mr. J. R. de la Torre Bueno, who wrote: "It is something different. Just what it is I do not care to pronounce upon. Your insect comes in a group of apparently undescribed forms from the Pacific coast." And later he added: "I believe it has at times been confused with *variegatus* Guerin."

Family BELOSTOMATIDÆ.

Benacus haldemanum (Leidy), Stal. (=grisea Say). Kansas, Douglas county; May, at electric light; July, at electric light. New to Kansas list.

Amorgius uhleri Mont. Kansas, Douglas county; July, at electric light.

The specimens of this species were formerly classified as *americanum* Leidy, but on being submitted to Mr. J. R. de la Torre Bueno, the determination was corrected. New to Kansas list.

Belostoma flumineum Say. Kansas, Douglas county; June.

Family CORIXIDÆ.

(A few representatives of this family are awaiting determination. Scarcely any authorities are able to distinguish the species.)

Corixa alternata Say. Kansas, Douglas county; June and July, all at electric light.

tumida Uhl. Colorado, Colorado Springs; August (31).

Family GERRIDÆ.

Gerris marginata Say. Kansas, Douglas county; April.
remigis Say. Colorado, Colorado Springs; August. Manitou; August.

SUMMARY OF FAMILIES AND SPECIES, INCLUDING NAMED VARIETIES.

Pentatomidæ	22	Anthocoridæ	2
Coreidæ	21	Capsidæ (Miridæ)	55
Berytidæ	1	Clinocoridæ	1
Lygæidæ	18	Acanthiidæ	1
Pyrrhocoridæ	1	Gelastocoridæ (Nerthridæ)	1
Tingidæ	4	Belostomatidæ	3
Phymatidæ	1	Corixidæ	2
Aradidæ	1	Gerridæ	2
Reduvidæ	12		

Total, 148.

LIST OF HEMIPTERA-HOMOPTERA.

The explanations given at the beginning of the list of the Heteroptera are also applicable to the Homoptera here listed. The valuable work of Professors Gillette and Baker on the Hemiptera of Colorado is indicative of what possibilities await similar investigation within the confines of Kansas.

Although the whole time I have spent in collecting insects in Colorado would hardly be worth consideration, my list herewith, however, refers to forty-seven species found in that state compared with ninety-eight species taken in Kansas, but in this count sixteen species were collected in both states. In the Colorado bulletin, the number of species of Homoptera credited in any way to me as the collector is twenty-eight, while the lack of such acknowledgment in regard to one other species seems accountable to an oversight. Three species and three varieties of my Colorado additions are not recorded in the bulletin. Of those that are, or should be, acknowledged in the bulletin, six species of jassids were described as new; one cercopid was described as a new species, though it is now regarded as a variety; and one fulgorid was mentioned as a new species but not described. All these make a total of seven new species and one new variety of my collecting in Colorado. There are forty-one species new to the Kansas list.

For assistance in the determination of numerous species, most of which were new to the University collection, acknowledgments are due to Prof. E. D. Ball, especially for work on the Jassidæ, excepting, however, the Typhlocybinæ, which received the attention of Prof. C. P. Gillette. Mr. E. A. Schwarz kindly identified some psyllids, and Mr. Otto Heidemann has also aided me. Mr. E. P. Van Duzee very kindly reviewed my preliminary list, making some changes and other corrections which were of material help.

Names of species in all the families are arranged alphabetically when more than one occurs in a genus.

Family CICADIDÆ.

Cicada dorsata Say. Kansas, Sedgwick county; August. Douglas county, August, September.

tibicen Linne. Kansas, Sedgwick county; August. Douglas county; July; August; September; October, first week. New to the Kansas list.

Family MEMBRACIDÆ.

(Arrangement of genera after Mr. F. W. Goding's "Bibliographical and Synonymical Catalogue of the Described Membracidæ of North America," published in Bull. Ill. St. Lab. Nat. His., vol. III.)

Entylia sinuata Fab., var. bactriana Germar. Kansas, Douglas county; May; June, twilight. New variety to the Kansas list.

Publilia concava Say. Kansas, Douglas county; May.

modesta Uhl. Colorado, Colorado Springs; August (31).

Ceresa bubalus Fab. Kansas, Douglas county; August.—Colorado, Colorado Springs; August (31); variety, Buffalo, August.

diceros Say. Kansas, Douglas county; July.—Colorado, Colorado Springs; August (31).

taurina Fitch. Kansas, Douglas county; June, July. New to Kansas.

Stictocephala festina Say. Kansas, Sedgwick county; June.

inermis Fab. Kansas, Douglas county; August. New to Kansas.

Telamona ampelopsidis Harr. Kansas, Douglas county; June; June, twilight. New to Kansas.

pyramidata Uhl. Colorado, Colorado Springs; July, August.

Acutalis calva Say. Kansas, Douglas county; June. New to Kansas.

Cyrtolobus vau Say. Colorado, Garden of the Gods; July. Green Mountain Falls; July (31).

Enchenopa binotata Say. Kansas, Douglas county; June; June, twilight.

Campylenchia curvata Fab. Colorado, Colorado Springs; August (31).

Family FULGORIDÆ.

(Arrangement of genera after Mr. O. H. Swezey, in his preliminary catalogue of the Fulgoridæ, Bulletin No. 3, Ohio Dept. Agric.)

Ormenis pruinosa Say. Kansas, Douglas county; July; July, twilight.

Amphiscepa bivittata Say. Kansas, Sedgwick county; August. Douglas county; August.

Bruchomorpha pallidipes Stal. Colorado, Colorado Springs; August (31).

Phylloscelis atra Germar, var. Kansas, Douglas county; August.

Dictyophara microrhina Wlk. Kansas, Sedgwick county; August.

Scolops grossus Uhl. Kansas, Douglas county; July. New to Kansas.

spurcus Uhl. Kansas, Douglas county; July, August.

sulcipes Say. Kansas, Douglas county; July, August.—Colorado, Colorado Springs; July, August (31).

Amalopota fitchi Van D. Kansas, Douglas county; July, at night; August, at night. New to Kansas.

Anotia kirkaldyi Ball. Kansas, Douglas county; August, at night. New to Kansas.

Family FULGORIDÆ.

Cixius stigmatus Say. Kansas, Sedgwick county; August. Douglas county; July; July, twilight; August.—Colorado, Colorado Springs; August (31).

Myndus, n. sp. Colorado, Manitou; July (31).

This was likely *impiger*, since described by Prof. E. D. Ball, who agrees in this opinion.

Oliarus complectus Ball. Kansas, Douglas county; June, twilight. New to Kansas.

Kelisia crocea Van D. Kansas, Douglas county; August, at night.

Pissonotus pallipes Van D. Colorado, Colorado Springs; August.

Stobæra tricarinata Say. Kansas, Douglas county; April; June; July, at night; August; August, at night.

Liburnia lutulenta Van D. Kansas, Douglas county, April. New to Kansas.

ornata Stal. Kansas, Douglas county; July, twilight; August, twilight. New to Kansas.

osborni? Van D. Colorado, Colorado Springs; April. August, macropterous form. New to the Colorado list.

Family CERCOPIDÆ.

Clastoptera obtusa Say. Kansas, Douglas county; June; June, twilight.

obtusa Say, var. osborni G. & B. Colorado, Cheyenne canyon; July. Manitou; August (31).

Family JASSIDÆ.

(Arrangement of genera after Mr. E. P. Van Duzee's Catalogue of Jassoidea, Trans. Amer. Ent. Soc., vol. XXI, with the adoption of recent generic names and other changes as far as known.)

(Subfamily *Bythoscopinæ*.)

Bythoscopus distinctus Van D. Kansas, Douglas county; June, twilight.

Pediopsis erythrocephala G. & B. Colorado, Colorado Springs; August (31, type).

viridis Fitch. Colorado, Colorado Springs; August (31).

Idiocerus moniliferæ O. & B. Kansas, Douglas county; June. New to Kansas.

nervatus Van D. Kansas, Douglas county; April. New to Kansas.

perplexus G. & B. Colorado, Cheyenne canyon; July. Colorado Springs; August (31, types). Also taken again at the latter place, August, 1906.

rufus G. & B. Colorado, Colorado Springs, August (31, cotypes).

snowi G. & B. Kansas, Douglas county; June, at electric light. New to Kansas.—Colorado, Colorado Springs; August (description in 31, but credit omitted, types). Buffalo; August, 1906.

suturalis Fitch. Kansas, Douglas county; June, at electric light. New to Kansas.—Colorado, Manitou; July (31).

(Subfamily *Bythoscopinæ.*)

Agallia constricta Van D. Kansas, Douglas county; April; June, twilight; July; July, twilight; August. New to Kansas.
novella Say. Kansas, Douglas county; June, twilight; July, August.
quadripunctata Prov. Kansas, Douglas county; May, June.
sanguinolenta Prov. Kansas, Douglas county; April, August.—Colorado, Colorado Springs; August (31). Denver; August.
uhleri Van D. Colorado, Bear Creek canyon; July. Colorado Springs; July, August.

(Subfamily *Tettigoninæ.*)

Oncometopia costalis Fab. Colorado, Colorado Springs; April, July, August.
Tettigonia bifida Say. Kansas, Douglas county; June, twilight; September.
hieroglyphica Say. Typical. Kansas, Douglas county; April, September.
hieroglyphica Say, var. dolobrata Ball. Kansas, Douglas county; June. New to Kansas.
hieroglyphica Say, var. uhleri Ball. Colorado, Cheyenne canyon; July. Colorado Springs; August. New variety to the Colorado list.
Diedrocephala coccinea For. Kansas, Douglas county; May; June; June, twilight; August; September, at night.
Dræculacephala angulifera Wlk. Kansas, Sedgwick county; June. New to Kansas.
mollipes Say. Kansas, Douglas county; May, at night; June; June, twilight; July; July, at electric light; August, at lamplight; September; September, at night.
Helochara communis Fitch. Colorado, Colorado Springs; August (31). Tabernash; August.
Xerophlœa peltata Uhl. Kansas, Sedgwick county; September.
Gypona dorsalis Spangb. Kansas, Douglas county; August.
The single specimen, which had been held in doubt for some time, was again submitted to Mr. E. P. Van Duzee, who reported as follows: "The *Gypona* you send I still consider very near to *dorsalis* of Spangburg, if not a pale form of that species. I have Kansas specimens so labeled in my own collection. It is closely allied to both *melanota* and *mexicana* of Spangburg, and even more closely to *bipunctata* Spangburg, from which it hardly differs except by its broader form and the different position of the ocelli." New to Kansas.
Gypona octolineata Say. Kansas, Douglas county; March, September.
octolineata Say, var. flavilineata Fitch. Kansas, Douglas county; June; June, at night; July, at electric light and at night; September, at electric light and at night. New to Kansas.—Colorado, Colorado Springs; August.

(Subfamily *Jassinæ.*)

Xestocephalus pulicarius Van D. Kansas, Douglas county; August.
Paramesus (Allygus) coloradensis G. & B. Colorado, Colorado Springs; August.
twiningi Uhl. Kansas, Douglas county; September, at night. New to Kansas.—Colorado, Colorado Springs; August.

(Subfamily *Jassinæ*.)

Platymetopius acutus Say. Kansas, Douglas county; October. New to Kansas.

frontalis Van D. Kansas, Sedgwick county; September. Douglas county; June; July, at night.

Deltocephalus flavocostatus Van D. Kansas, Douglas county; May, at night. June, twilight; July; August; September.

inimicus Say. Kansas, Douglas county; June; June, twilight; July; August; September, at night.

nigrifrons Forbes. Kansas, Douglas county; April; May; May, twilight; July; August. New to Kansas.

melscheimeri Fitch. Kansas, Douglas county; May, at night; June, sweepings; July.—Colorado, Colorado Springs; August.

signatifrons Van D. Colorado, Denver; August. Colorado Springs; August.

sylvestris O. & B. Kansas, Douglas county; May, July. New to Kansas.

weedi Van D. Kansas, Douglas county; June, twilight; August. New to Kansas.

Athysanus (Limotettix) exitiosa Uhl. Kansas, Sedgwick county; September, in vineyard. Douglas county; May, July; September, at night; October 2, very numerous in lawn grass between walks and gutter of street on campus of University of Kansas.—Colorado, Colorado Springs; August (31).

Eutettix incerta G. & B. Colorado, Manitou; July (31, type).

manitou Ball. Colorado, Colorado Springs; August. New to the Colorado list.

seminuda Say. Kansas, Sedgwick county; September, swept from foliage of peach trees. Douglas county; August, at lamplight.

(Phlepsius) strobi Fitch. Kansas, Sedgwick county; September. Douglas county; July, at night; August, at night.

Phlepsius irroratus Say. Kansas, Sedgwick county; June; September. Douglas county; May; June; June, twilight; July; August; August, at electric light; September; September, at night.

decorus O. & B. Kansas, Douglas county; July, September. New to Kansas.

ovatus Van D. Colorado, Colorado Springs; August,

Scaphoideus immistus Say. Kansas, Douglas county; June; June, at electric light and at night; July.

scalaris Van D. Kansas, Douglas county; July. New to Kansas.

Thamnotettix clitellaria Say. Kansas, Douglas county; June.

longula G. & B. Kansas, Douglas county; April. New to Kansas.

fitchi Van D. Kansas, Douglas county; July. New to Kansas.

heidemanni Ball. Colorado, Tabernash; August. New to Colorado list.

Chlorotettix galbanata Van D. Kansas, Douglas county; July.

spatulata O. & B. Kansas, Douglas county; June.

unicolor Fitch. Colorado, Colorado Springs; August.

(Subfamily *Jassinæ.*)

Jassus olitorius Say (=Cœlidia subbifasciata Say). Kansas, Douglas county; July, August, September, October.

Gnathodus abdominalis Van D. Kansas, Sedgwick county; September, in pear orchard. Douglas county; September, at electric light.—Colorado, Garden of the Gods; July. Green Mountain Falls; July. Colorado Springs; August (31). Buffalo; August.

impictus Van D. Kansas, Douglas county; June. New to Kansas.

manitou G. & B. Colorado, Manitou; July (31, type).

Cicadula sex-notata Fal. Kansas, Douglas county; July, August.—Colorado, Green Mountain Falls; July. Colorado Springs; July, August (31, =divisa Uhler). Denver; August.

variata Fal. Kansas, Douglas county; August.

(Subfamily *Typhlocybinæ.*)

Empoasca albolinea Gill. Kansas, Douglas county; July, at electric light; September, at electric light. New to Kansas.

mali Le B. Kansas, Douglas county; July, August.

obtusa Walsh. Kansas, Sedgwick county; September, sweepings in slough-grass among timber bordering Arkansas river. Douglas county, August.—Colorado, Cheyenne canyon; July. Manitou; July. Colorado Springs; August (31).

smaragdula Fal. Colorado, Cheyenne canyon; July. Colorado Springs; August (31).

viridescens Walsh. Kansas, Douglas county; May; June, twilight; July, August. New to Kansas.

Dicraneura abnormis Walsh. Kansas, Douglas county; April; April, at night; May; May, at night; July; August, "pale" form.

fieberi Loew. Kansas, Douglas county; May, at night; July. New to Kansas.

Typhlocyba comes Say. Typical. Kansas, Douglas county; April; April, on currant and gooseberry bushes; May; July; November.

comes Say, var. basilaris Say. Kansas, Douglas county; April, on currant and gooseberry bushes; July, August.

comes Say, var. coloradensis Gill. Kansas, Sedgwick county; September, on fruit farm.—Colorado, Denver; August. New variety to the Colorado list.

comes Say, var. maculata Gill. Kansas, Douglas county; July; aberrant form with black scutellum, April.

comes Say, var. scutelleris Gill. Kansas, Douglas county; April.

comes Say, var. vitis Harr. Kansas, Douglas county; July, August.

comes Say, var. ziczac Walsh. Colorado, Denver; August. New variety to the Colorado list.

obliqua Say. Kansas, Douglas county; March; April, both bright and smoky colored, on currant and gooseberry bushes; June, twilight, with pale yellow lines wanting on head.

obliqua Say, var. nœvus Gill. Kansas, Douglas county; aberration with pale yellow lines instead of red; June, twilight.

(Subfamily *Typhlocybinæ.*)

Typhlocyba rosæ Harr. Kansas, Douglas county; May, at lamplight; July; August. New to Kansas.—Colorado, Colorado Springs; July, August. Garden of the Gods; July. Cheyenne canyon; July (31).

tricincta Fitch. Kansas, Douglas county; July, August.

trifasciata Say. Kansas, Douglas county; August.

vulnerata Fitch. Kansas, Sedgwick county; September, on fruit farm. Douglas county; July, August, October.

Family PSYLLIDÆ.

Aphalara angustipennis Riley. Colorado, Green Mountain Falls; July.

calthæ Linne. Colorado, Green Mountain Falls; July. Colorado Springs; July (31).

polygoni Föerst. Kansas, Douglas county; September. New to Kansas.

utahensis Riley. Colorado, Green Mountain Falls; July (31).

Psylla coryli Riley. Colorado, Manitou; July (31).

Pachypsylla celtidis-asteriscus Riley. Kansas, Douglas county; April. New to Kansas.

celtidis-mamma Riley. Kansas, Douglas county; adults in March, April, and October; galls on leaves of hackberry throughout the season. New to Kansas.

celtidis-minuta Riley. Kansas, Sedgwick county; April, on farm near Wichita. New to Kansas.

Family APHIDIDÆ.

(Mr. C. E. Sanborn has worked up the species which he was able to find in the state and published the results under the title of "Kansas Aphididæ," in University Science Bulletin, volume III, Nos. 1 and 8. However, I am able to record the following two species whose names are not entered on the separate Kansas list. The determinations were made by Mr. Sanborn.)

Schizoneura americana Riley. Kansas, Douglas county; August.

In the twilight of the evening I took several winged specimens. The air had floating in it numerous white insects. After capturing some I noticed it was a cottony secretion which gave them their white appearance and also sustained them or caused them to be wafted along by the wind. They appeared to be leaving elm trees after a shower of rain. New to Kansas list.

Lachnus longistigma Monell. Kansas, Douglas county; May, November; taken while flying. New to Kansas list.

SUMMARY OF FAMILIES AND SPECIES, INCLUDING VARIETIES.

Cicadidæ	2	Jassidæ	82
Membracidæ	14	Psyllidæ	8
Fulgoridæ	19	Aphididæ	2
Cercopidæ	2		

Total, 129.

LIST OF ORTHOPTERA AND EUPLEXOPTERA.

Previous explanations in regard to the circumstances under which my collecting was done hold true in respect to the insects of the above-named orders, whose names and records are here presented. The arrangement used follows that of Dr. S. H. Scudder in his catalogue of 1899, except that the family Forficulidæ is separately considered as constituting the order Euplexoptera, which is therefore placed in position after the Orthoptera, according to Prof. V. L. Kellogg's method, instead of before, as was formerly done. Recent changes in nomenclature are adopted so far as known.

Considerable progress has already been made towards a knowledge of the orthopteran species occurring in Kansas, principally through the efforts of Mr. F. B. Isely, who gives the names of ninety-seven species, including the one species of Forficulidæ, which should be separately considered, in his paper entitled "Notes on Kansas Orthoptera." This paper was published in Transactions of the Kansas Academy of Science, volume XIX, pages 238–249. Another paper deserving of mention, "The Melanopli of Kansas," was prepared jointly by Prof. S. J. Hunter and Mr. W. S. Sutton, and it appeared in different issues of *Psyche*, volume IX. A compilation of the names and records of the species mentioned in these articles, together with those that are reported as being found in Kansas according to Scudder's catalogue and other miscellaneous sources of information, and the addition of what can be found by inspection of all named specimens in different departments of the University, would afford a nearly complete list for the state. Such help as my list offers in this direction is freely granted to whoever undertakes the work as suggested.

In all, my list gives the names of seventy species and one variety, besides one species of Euplexoptera, which were taken in Kansas. Twenty-six species are not reported in Isely's list. The Colorado collecting includes thirty-one species, eight of which are new to the list published by Prof.

C. P. Gillette, in Bulletin No. 94, Colorado Agricultural Experiment Station. Six species were found in both states.

Quite a number of my specimens were identified by Mr. James A. G. Rehn, together with other unnamed material belonging to the University collections, which were sent to him for study by Dr. F. H. Snow, and Mr. Rehn's interesting and valuable report under the title of "Notes and Descriptions of Orthoptera from the Western United States in the Entomological Collection of the University of Kansas," was published in Transactions of the Kansas Academy of Science, volume XIX. Both Mr. A. N. Caudell and Prof. Lawrence Bruner have answered promptly and courteously my inquiries concerning specimens submitted. References are given in their proper places, calling attention to Scudder's authentic types as mentioned in his "Revision of the Orthopteran Group Melanopli," in Proceedings United States National Museum, volume 20.

Family Blattidæ.

Ischnoptera bolliana Sauss.-Zehnt. Kansas, Douglas county; June, at night and at electric light; July. Not reported in Isely's list.

Ischnoptera sp.? Kansas; March and April, under stones and rubbish; September, at random; September, with oöthecæ, from combs in a beehive badly ravaged by wax-worms (*Galleria mellionella* Linne).

Could not be determined definitely from immature female specimens whether *pennsylanica* De G. or *couloniana* Sauss. However, as Mr. Isely records *pennsylvanica* in his list as occurring in beehives, perhaps the preference should be given this name, although *couloniana* was found in Texas. An adult male of *pennsylvanica* is one of a very few specimens saved from a collection begun in boyhood days while living in Oil City, Venango county, Pennsylvania.

Ischnoptera uhleriana Sauss. Kansas, Douglas county; June; June, at electric light. Not reported in Isely's list.

Blatta germanica Linne. Kansas, Douglas and Sedgwick counties.—Colorado, Colorado Springs. Pueblo. Denver.

A nymph collected in Lawrence, August twilight, was traveling through grass in dooryard, which fact indicates that the species migrates on foot. It is a pest common all through the year in households, restaurants, and bakeries.

Themnopteryx deropeltiformis Brunn. Kansas, Douglas county; January, in house; March; April; June, at night. Not reported in Isely's list.

Stylopyga orientalis Linne. Kansas, Douglas county; June, in cupboard of kitchen; July; August; September, under electric street light; Decemcember 4, dead, but fresh specimen.

Family MANTIDÆ.

Stagmomantis carolina Linne. Kansas, Douglas county; September; October, at electric light. Sedgwick county; September.

Family PHASMIDÆ.

Diapheromera femorata Say. Kansas, Douglas county; September. Sedgwick county; August.

Family ACRIDIIDÆ.

(Subfamily *Tettiginæ.*)

Tettix hancocki Morse. Kansas, Douglas county; May.
obscurus Hanck. Kansas, Douglas county; April, August, September, October.
Paratettix cucullatus Morse. Kansas, Douglas county; June, September, October.
toltecus Sauss. Kansas, Douglas county; May. Not reported in Isely's list.
Tettigidea lateralis Say. Kansas, Douglas county; April. Not reported in Isely's list.

(Subfamily *Tryxalinæ.*)

Syrbula admirabilis Uhl. Kansas, Douglas county; August, at electric light; September. Sedgwick county; August.
Opeia obscura Thom. Colorado, Colorado Springs; August. New to Colorado list.
Cordillacris (Alpha) occipitalis Thom. Colorado, Colorado Springs; August.
Phlibrostroma quadrimaculatum Thom. Colorado, Garden of the Gods; July. Colorado Springs; August. Buffalo, August.
Orphulella pelidna Burm. Kansas, Douglas county; September. Not reported in Isely's list.
speciosa Scudd. Kansas, Douglas county; August, at electric light; September.
Dichromorpha viridis Scudd. Kansas, Douglas county; July.
Ageneotettix scudderi Brun. Colorado, Colorado Springs; August.
Aulocara elliotti Thom. Colorado, Colorado Springs; August.

(Subfamily *Œdipodinæ.*)

Arphia arcta Scudd. Colorado, Colorado Springs; April. New to Colorado list.
carinata Scudd. Kansas, Douglas county; August, at electric light. Sedgwick county; August. Not reported in Isely's list.
conspersa Scudd. Kansas, Douglas county; data lost. Not reported in Isely's list.
infernalis Sauss. Kansas, Douglas county; April. Not reported in Isely's list.
tenebrosa Scudd. Colorado, Colorado Springs; August.
Chortophaga virdifasciata De G. Kansas, Douglas county; April, May, June, September. Sedgwick county; August.—Colorado, Colorado Springs; April.
Encoptolophus sordidus Burm. Kansas, Douglas county; September.

(Subfamily *Œdipodinæ.*)

Hippiscus rugosus Scudd. Kansas, Douglas county; August, at electric light; September. Sedgwick county; August; August, at electric light.

tuberculatus Pal. de Beauv. Kansas, Douglas county; May.

neglectus Thom. Colorado; Colorado Springs; April. Manitou; August.

Dissosteira carolina Linne. Kansas, Douglas county; July to October. Sedgwick county, August.

longipennis Thom. Kansas, Sedgwick county; August; August, at electric light. Not reported in Isely's list.—Colorado, Colorado Springs; July 21, 1898, great invasion on the streets after dark, attracted by electric lights (see account in Trans. Kan. Acad. Sci., vol. XX, p. 112); and collected in August.

Spharagemon æquale Say. Colorado, Colorado Springs; August.

collare Scudd. Colorado, Colorado Springs; August.

Derotmema haydeni Thom. Colorado, Colorado Springs; August.

Mestobregma kiowa Thom. Colorado, Garden of the Gods; July. Colorado Springs; August. Denver; August.

Matator pardalinus Sauss. Colorado, Colorado Springs; August.

Trimerotropis citrina Scudd., var. isabelline McNeill. Kansas, Douglas county; June, at electric light. Variety not reported in Isely's list.

fratercula McNeill. Colorado, Garden of the Gods; July. Manitou; July. New to Colorado list.

laticincta Sauss. Colorado, Colorado Springs; August. New to Colorado list.

melanoptera McNeill. Colorado, Colorado Springs; August. New to Colorado list.

monticola Sauss. Colorado, Colorado Springs; August.

præclara McNeill. Colorado, Colorado Springs; August. New to Colorado list.

Circotettix undulatus Thom. Colorado, Green Mountain Falls; July.

Hadrotettix trifasciatus Say. Colorado, Colorado Springs; August. Denver; August.

(Subfamily *Acridiinæ.*)

Schistocerca alutacea Harr. Kansas, Sedgwick county; August.

americana Drury. Kansas, Douglas county; September, October. Sedgwick county; August.

Campylacantha acutipennis Scudd. Kansas, Douglas county; October. Not reported in Isely's list.

olivacea Scudd. Kansas, Douglas county; September, October.

Hesperotettix pratensis Scudd. Kansas, Sedgwick county; August.

Melanoplus bivittatus Say. Kansas, Douglas county; July to September. Sedgwick county; August.—Colorado, Colorado Springs; August (Scudder's type, Revision of Melanopli).

coccineipes Scudd. Colorado, Colorado Springs; August (Scudder's type, Revision of Melanopli).

conspersus Scudd. Colorado, Colorado Springs; August.

(Subfamily *Acridiinæ*.)

Melanoplus differentialis Uhl. Kansas, Douglas county; July to October. Sedgwick county; August.

femur-rubrum De G. Kansas, Douglas county; August, September.

flabellifer Scudd. Colorado, Colorado Springs; August (Scudder's type, Revision of Melanopli).

flavidus Scudd. Colorado, Colorado Springs; August (Scudder's type, Revision of Melanopli).

packardii Scudd. Kansas, Sedgwick county; August.—Colorado, Colorado Springs; July, August. Garden of the Gods; July (Scudder's types, Revision of Melanopli).

plumbeus Dodge. Colorado, Colorado Springs; August (Scudder's type, Revision of Melanopli). New to Colorado list.

scudderi Uhl. Kansas, Douglas county; September.

Family LOCUSTIDÆ.

Scudderia furcata Brun. Kansas, Douglas county; September; September, at night; October. Sedgwick county; August.

Amblycorypha scudderi Brun. Kansas, Douglas county; July. Not recorded in Isely's list.

Microcentrum laurifolium Linne. Kansas, Douglas county; August, September, October.

Cyrtophyllus perspicillatus Linne. Kansas, Douglas county; August, at night, captured by aid of light of lantern high up in elm tree (see Trans. Kan. Acad. Sci., vol. XX, p. 111). Not recorded in Isely's list.

Conocephalus crepitans Scudd. Kansas, Douglas county; September; September, at electric light. Sedgwick county; August. Also brown variety, Sedgwick county; August; August, at electric light.

nebrascensis Brun. Kansas, Douglas county; August, at electric light.

triops Linne. Kansas, Douglas county; September, at electric light. Not recorded in Isely's list.

Orchelimum glaberrimum Burm. Kansas, Douglas county; August, at electric light; September; October.

longipenne Scudd. Kansas, Douglas county; July, at electric light.

nigripes Scudd. Kansas, Douglas county; August, September, October.

volantum McNeill. Kansas, Douglas county; July, at electric light. Not recorded in Isely's list.

Xiphidium attenuatum Scudd. Kansas, Douglas county; August, at electric light.

brevipenne Scudd. Kansas, Douglas county; September. Not recorded in Isely's list.

fasciatum De G. Kansas, Douglas county; July and August, both at electric light.—Colorado, Colorado Springs; August. New to Colorado list.

nemorale Scudd. Kansas, Douglas county; October.

Family Locustidæ.

Ceuthophilus bruneri Scudd. Kansas, Douglas county; June (nymph). Sedgwick county; data lost. Not recorded in Isely's list.
inquinatus Scudd. Kansas, Douglas county; September. Not recorded in Isely's list.
tuckeri Rehn. New species, to be described. Kansas, Douglas county; October, at night. Addition to Kansas list.
Udeopsylla nigra Scudd. Kansas, Douglas county; June, at night.
robusta Hald. Kansas, Sedgwick county; on farm, data lost. Not recorded in Isely's list.

Family Gryllidæ.

Gryllotalpa borealis Burm. Kansas, Douglas county; July, at electric light.
Tridactylus apicalis Say. Kansas, Douglas county; May, along sandy banks of Kansas river. Not recorded in Isely's list.
Ellipes minuta Scudd. Kansas, Douglas county; May, along sandy banks of Kansas river. Not recorded in Isely's list.
Nemobius fasciatus De G. Kansas, Douglas county; July and August, both at electric light. Sedgwick county; August, at electric light.
fasciatus De G., var. vittatus Harr. Kansas, Douglas county; September, October.
Gryllus abbreviatus Aud.-Serv. Kansas, Douglas county; September, October. Sedgwick county; August.
luctuosus Aud.-Serv. Kansas, Douglas county; June and July, all at electric light. Not recorded in Isely's list.
pennsylvanicus Burm. Kansas, Douglas county; July; July, at electric light.
Œcanthus angustipennis Fitch. Kansas, Douglas county; September.
fasciatus Fitch. Kansas, Douglas county; September.
niveus De G. Kansas, Sedgwick county; August.
quadripunctatus Beut. Kansas, Douglas county; June, twilight; September, in company with *fasciatus* Fitch. Sedgwick county; August.
Xabea bipunctata De G. Kansas, Douglas county; August, at electric light. Not recorded in Isely's list.
Hapithes agitator Uhl. Kansas, Douglas county; August, colony on ailanthus bush. Not recorded in Isely's list.

SUMMARY OF FAMILIES AND SPECIES, INCLUDING VARIETIES.

Blattidæ	6	Acridiidæ	54
Mantidæ	1	Locustidæ	20
Phasmidæ	1	Gryllidæ	14

Total, 96.

Order *EUPLEXOPTERA*.

Family Forficulidæ.

Labia minor Linne. Kansas, Douglas county; July, at night; August, twilight and at night; October.

LIST OF NEUROPTEROUS INSECTS.

No further explanations are necessary regarding the collecting than have been previously stated. The arrangement used here follows the catalogue of Mr. Nathan Banks, in Transactions of the American Entomological Society, volume XIX, mainly in the disposition of the generic and specific names, although the rank of the orders as advocated by Prof. V. L. Kellogg, in his "American Insects," is maintained.

With one exception, in the case of the Psocidæ, as referred to in the proper place, no attempt has been made hitherto towards publishing a list of the neuropterous insects found in Kansas. Consequently, if the present list of those possessing Kansas records be duly considered as forming a preliminary state list, a beginning is made with fifty-eight species and one variety. The same rule, if not presuming too much, may also apply to the Colorado examples, since I am not aware that any list has been published for that state; therefore, the names of thirty-one species here presented form a beginning. Six species were found in both states.

The determinations of the University material, including most of my collections, have been made by Mr. Nathan Banks, excepting a number of examples in the order Odonata which received the attention of Mr. E. B. Williamson. A few specimens of May-flies and stone-flies which had not been fully identified were submitted to Prof. James G. Needham, for study. He was unable to give specific names for the greater number as some were in bad condition and some undescribed. However, his valuable remarks concerning each form are quoted, since all knowledge gained will help in the end towards defining each species when more material shall be available.

Order *EPHEMERIDA*.

Family Ephemeridæ.

(All of the Douglas county, Kansas, specimens were collected at electric light on or near bridge across the Kansas river, at Lawrence, except in one instance, which is denoted.)

Polymitarchys albus Say. Kansas, Douglas county; July and August. (See notes on collecting, Trans. Kan. Acad. Sci., vol. XX, p. 116.)

Family EPHEMERIDÆ.

Hexagenia bilineata Say. Kansas, Douglas county; July and September.
venusta Eaton. Kansas, Douglas county; July and August.

Pentagenia quadripunctata Walsh. Kansas, Douglas county; June, July, and August.

Siphlurus sp. Kansas, Douglas county; June and July.

The results of Professor Needham's study of this species is stated by him as follows: "Probably new; one male subimago, one male imago lacking setæ, and two female subimagos badly broken; with all these, owing to their condition, there is barely sufficient material for description. I have made a photograph of the female subimago which is in best condition, but I have not taken your leave to retain a specimen, for it is still too inadequately represented in your own collection." The male imago was taken in July, in daytime, at a distance of more than a mile from the river.

Siphlurus sp. Colorado, Cheyenne canyon, near Colorado Springs; July.

Professor Needham reported on it as follows: "Probably new; one broken female. It is different from the foregoing, and appears to be different from all described species. I have specimens from New Mexico received years ago; I am holding them, waiting for the arrival of an adult male, for description. It only contributes to the existing confusion to describe May-flies from females alone, or to describe them without giving a figure of the female appendages."

Heptagenia pulchella Walsh. Kansas, Douglas county; June and July.

Heptagenia sp. Colorado, Buffalo, Platte canyon; August.

Professor Needham says of this: "A single male which I cannot identify; may be undescribed, but I cannot be sure. In order to be certain in identification of May-flies, and of some stone-flies also, I require to have sufficient material so that I can make slide mounts of the male appendages, and I prefer to have alcoholic material sent me."

Rithogenia elegantula Eaton. Kansas, Douglas county; July.

Leptophlebia sp. Colorado, Tabernash; August.

Nothing further than the genus could be learned, as Professor Needham explains: "This specimen came badly broken." Male.

Callibætis eatoni Needh. Colorado, Tabernash; August. Colorado Springs; August.

Regarding the specimens thus designated, Professor Needham wrote: "Sp. nov. of Eaton's monograph, p. 195. It is well described there, but not named; it is new, in my opinion. I have been calling the species *C. eatoni* in my own collection. Three male imagos and one female subimago; the latter I have photographed."

Callibætis sp. Colorado, Colorado Springs; July and August.

Professor Needham regards it as follows: "Male. I doubt if it be *coloradensis* Banks; but since the male is undescribed, it is impossible to say. I have not the female of that species in my collection; the size of this male and the black spots on the costa seem hardly to be expected in conjunction with a female of the character described by Banks."

Cænis diminuta Wlk. Kansas, Douglas county; July to September. (See notes on collecting, Trans. Kan. Acad. Sci., vol. XX, p. 116.)

Order *PLECOPTERA.*

Family Perlidæ.

(With few exceptions, which are denoted in each case, the Douglas county, Kansas, specimens were collected at electric light on bridge across the Kansas river at Lawrence.)

Acroneuria ruralis Hagen. Kansas, Douglas county; July.

Perla ephyre Newm. Kansas, Douglas county; July, at electric light in town, away from river; August, found resting in daytime.

flavescens Walsh. Kansas, Douglas county; last week of June, at electric light one mile from river; July, found resting in daytime, and July, at electric light on bridge.

lurida Hagen. Kansas, Douglas county; July.

xanthenes Newm. Kansas, Douglas county; July, at electric light in town; August, at electric light on bridge.

Perlinella placida Hagen. Kansas, Douglas county; July.

Perlinella, species probably new. Kansas, Douglas county; August, found resting in daytime more than a mile from the river.

In his report on this, Professor Needham says: "I agree it is a new species, but it is not in fit condition for description; the ventral lamina of the female is important above most characters, and it is not visible in this specimen."

Pseudoperla occipitalis Pict. Kansas, Douglas county; July.

Chloroperla bilineata Say. Kansas, Douglas county; May.

Alloperla imbecilla Say (also determined as pallidula Banks). Colorado, Cheyenne canyon, near Colorado Springs; July. Also swept from bushes at edge of stream in Stratton park, below entrance to Cheyenne canyon; August.

Capnia pygmæa Burm. (Specimen badly damaged, but evidently this species.) Kansas, Douglas county; April, on bank of Kansas river.

Order *ODONATA.*

(The arrangement advanced by Mr. E. B. Williamson in "The Dragonflies of Indiana," Twenty-fourth Annual Report of the Department of Geology and Natural Resources of Indiana, is here adopted so far as is therein denoted for this order.)

Family Calopterygidæ.

Calopteryx maculata Pal. de Beauv. Kansas, Douglas county; June, twilight, a wanderer on University hill, evidently settling down to pass the night.

Hetærina basalis Hagen. Kansas, Douglas county; August, at Wakarusa river.

Family Agrionidæ.

Lestes forcipatus Ramb. Kansas, Douglas county; May, at night.

rectangularis Say. Kansas, Douglas county; August.

unguiculatus Hagen. Kansas; June, in timber along Kansas river; August, in town.

Argia agrioides Calv. Colorado, Colorado Springs; July, 5915 feet; August.

Family Agrionidæ.

Amphiagrion saucium Burm. Colorado, Colorado Springs; July and August.
Enallagma civile Hagen. Kansas, Douglas county; June, near Kansas river. Colorado, Colorado Springs; July and August.
clausum Morse. Colorado, Colorado Springs; August.
prævarum Hagen. Colorado, Colorado Springs; July and August.
Ischnura perparva McL. Colorado, Colorado Springs; July.
verticalis Say. Kansas, Douglas county; May, skirting river; June, near river.

Family Gomphidæ.

Herpetogomphus designatus Selys. Kansas, Douglas county; July, in town.
Gomphus amnicola Walsh. Kansas, Douglas county; June, near river.
Ophiogomphus severus Hagen. Colorado, Buffalo, Platte canyon; August.

Family Æschnidæ.

Æschna multicolor Hagen. Colorado, Colorado Springs; August.
Anax junius Drury. Kansas, Douglas county; May, near river; May 26, in town; August 11, inside of window.

Family Libellulidæ.

Perithemis domitia Drury. Kansas, Douglas county; July, along river.
Celithemis eponina Drury. Kansas, Douglas county; July, along river.
Sympetrum corruptum Hagen. Kansas, Douglas county; October, in town.—Colorado, Colorado Springs and Denver; August.
rubicundulum Say. Kansas, Douglas county; September, in town.
rubicundulum Say, var. assimilatum Uhl. Kansas, Douglas county; September, in town.
semicinctum Say. Colorado, Colorado Springs; August.
vicinum Hagen. Kansas, Douglas county; July.
Pachydiplax longipennis Burm. Kansas, Douglas county; September, in town.

Order *ISOPTERA*.

Family Termitidæ.

Termes flavipes Koll. Kansas, Douglas county; July, from rotten oak stringers in sidewalk.
lucifugus Rossi. Colorado, Colorado Springs; August.

Order *CORRODENTIA*.

(Prof. V. L. Kellogg treats of the family Psocidæ before Atropidæ, contrary to the arrangement of Mr. Nathan Banks.)

In the Transactions of the Kansas Academy of Science, volume XIX, Mr. F. F. Crevecœur refers to four species of psocids in his additions to the list of Kansas Hemiptera, but my species is not mentioned there.

Family Psocidæ.

Pterodela pedicularia Linne. Kansas, Douglas county; September.

Family Atropidæ.

Atrops divinatoria Fab. Kansas, Douglas county; September, found on boards used for spreading wings of Lepidoptera; October, from leaf of book; November, among fragments of insects.

Order *NEUROPTERA.*

(Attention hardly needs to be called to the wide separation of the neuropterous insects having active metamorphosis from those with complete metamorphosis, between which the orders Orthoptera, Euplexoptera, Hemiptera and Thysanoptera are now interposed according to rank.)

Family Sialidæ.

Chauliodes rasticornis Ramb. Kansas, Douglas county; May, at electric light near river.

Corydalis cornuta Linne. Kansas, Douglas county; July and August, all at electric light, usually near river. Larvæ in riffles of Wakarusa river; July.

A single larva was once found under electric light on Kansas river bridge, where it had evidently crawled from the water, and in doing so necessarily climbed a high pier.

Family Chrysopidæ.

Chrysopa majuscula Banks. Colorado, Denver; August.

nigricornis Burm. Kansas, Douglas county; April, at electric light; June; October.—Colorado, Colorado Springs and Denver; August.

oculata Say. Kansas, Douglas county; May; June, twilight; July; July, twilight, Sedgwick county; August.—Colorado, Denver; August.

plorabunda Fitch. Kansas, Douglas county; April; June; July, at night; August; August, at night; November. Sedgwick county; August. Colorado, Cheyenne canyon and Garden of the Gods; July. Colorado Springs; August.

rufilabris Burm. Kansas, Douglas county; July, twilight; August, at night. Colorado, Colorado Springs; August.

sabulosa Banks. Colorado, Denver; August.

Family Hemerobidæ.

Hemerobius stigmaterus Fitch. Kansas, Douglas county; April; May; May, at night; August, at night; September, at night, and October.

Sympherobius amiculus Fitch. Kansas, Douglas county; June.

perparvus McL. Kansas, Douglas county; April, at lamplight.

Micromus variolomus Hagen. Colorado, Denver and Tabernash; August.

Family MYRMELEONIDÆ.

Brachynemurus abdominalis Say. Kansas, Douglas county; August; August, at night. Sedgwick county; August.
hubbardi Cur. Colorado, Garden of the Gods; July.
nigrilabris Hagen. Colorado, Colorado Springs; August.

Family CONIOPTERYGIDÆ.

Coniopteryx vicina Hagen. Kansas, Douglas county; May.

ORDER *MECOPTERA.*

Family PANORPIDÆ.

Bittacus stigmaterus Say. Kansas, Douglas county; July, at night; August, in weeds of thicket.
strigosus Hagen. Kansas, Douglas county; June, in thicket of timber along Kansas river; July, in weeds of thicket.

ORDER *TRICHOPTERA.*

(Night after night, as the weather permitted, almost regularly during three collecting seasons and at odd times since, I have visited the electric lights on the bridge crossing the Kansas river at Lawrence, particularly in search of different kinds of caddis-flies, which were attracted there at times in great numbers, and my success in collecting them is attested by as complete a representation of species for this locality as could be possible, perhaps.)

Family LIMNEPHILIDÆ.

Limnephilus oslari Banks. Colorado, Tabernash; August.
Dicosmœcus atripes Hagen. Colorado, Tolland, on train; August.
Apatania pallida? Hagen. Kansas, Douglas county; October, attracted by lamplight in room.

Family LEPTOCERIDÆ.

Leptocerus dilutus Hagen. Kansas, Douglas county; July to October, all at electric light on river bridge.
Setodes albida Wlk. Kansas, Douglas county; July to September, all at electric light on river bridge.
uwarowii Koll. Kansas, Douglas county; July to September, all at electric light on river bridge.
Mystacides punctata Banks. Kansas, Douglas county; July to September, all at electric light on river bridge. (Type, August; others, homotopotypes.)
Olemira americana Banks. Colorado, Manitou; July.

Family HYDROPSYCHIDÆ.

Hydropsyche cockerelli Banks. Colorado, Buffalo; August.
kansensis Banks. Kansas, Douglas county; June to September, all at electric light on river bridge. (Type wanting; specimens on hand, homo-topotypes. See notes on collecting, Trans. Kan. Acad. Sci., vol. XX, p. 117.)

Family HYDRCPSYCHIDÆ.

Hydropsyche phalerata Hagen. Kansas, Douglas county; May, July, August, and September, all at electric light on river bridge.

scalaris Hagen. Kansas, Douglas county; May, at night; June to October, at electric light on river bridge; April and August, in house at lamplight.

Psychomyia mœsta Banks. Colorado, Buffalo; August, captured as the insects alighted on sides of box cars standing on the bank of Platte creek.

SUMMARY OF FAMILIES AND SPECIES, INCLUDING VARIETIES.

Ephemeridæ	13	Sialidæ	2
Perlidæ	11	Chrysopidæ	6
Calopterygidæ	2	Hemerobidæ	4
Agrionidæ	10	Myrmeleonidæ	3
Gomphidæ	3	Coniopterygidæ	1
Æschnidæ	2	Panorpidæ	2
Libellulidæ	8	Limnephilidæ	3
Termitidæ	2	Leptoceridæ	5
Psocidæ	1	Hydropsychidæ	5
Atropidæ	1		

Total, 84.

LIST OF DIPTERA.

My opening remarks, together with the introduction to the list of Hemiptera-Heteroptera, relate the circumstances under which my collecting was done. A statement is also made that all my specimens, whenever desirable, have been freely added to the entomological collections of the University of Kansas.

Unless otherwise stated in the proper places, the arrangement and nomenclature used in the preparation of this list of the two-winged flies are adopted in accordance to Prof. J. M. Aldrich's "Catalogue of North American Diptera." The pleasure I had in association with Professor Aldrich a number of years ago, when he spent some time in research study at the University of Kansas, induces me to express my high estimation of his very helpful work as shown by this catalogue. His recent assistance so promptly rendered in the determination of some of my specimens belonging to the family Dolichopodidæ is hereby gratefully acknowledged.

To Mr. D. W. Coquillett, through the courtesy of Dr. L. O. Howard, of the Bureau of Entomology, United States Department of Agriculture, Washington, D. C., I am deeply indebted for very valuable and generous services which he has repeatedly afforded me in the identification of specimens. Other acknowledgments are accredited in the proper places to specialists who have rendered assistance in naming specimens belonging to certain families. Nearly all the specimens of my early collecting were worked over almost in turn by Dr. S. W. Williston, Mr. W. A. Snow, Prof. J. M. Aldrich, and more recently by Dr. C. F. Adams, during the course of their research studies at the University of Kansas. The determinations made by myself have depended largely upon comparisons of my examples with named specimens in the University collection.

As shown by the tabulated summary at the end of the list, nearly half of the species taken by me in Kansas are new to the state lists, the preliminary one being published by Dr.

F. H. Snow in the Kansas University Science Bulletin, volume II, No. 5, to which additions were made by Mr. F. F. Crevecœur in Transactions of the Kansas Academy of Science, volume XX, pages 90–96. In answer to my inquiry, directed to Prof. T. D. A. Cockerell, whether any list had been attempted for Colorado, I received the reply here quoted: "No list of the Diptera of Colorado has appeared. I have a manuscript list, as complete as I have been able to make it, of the Diptera of the Rocky Mountains (principally Colorado and New Mexico), and so can state if any particular species appears to be new to the region." Mr. W. A. Snow published a paper entitled "Diptera of Colorado and New Mexico," in Kansas University Quarterly, volume III, but in this, as well as in a preceding paper, "Notes and Descriptions of Syrphidæ" (*loc. cit.*, vol. I), his references are confined to that one family, the Syrphidæ, and only so far as he had studied the species then represented in the University collections. Thus the names of those species which I have recorded as being found in Colorado should be of material help towards forming a preliminary list for that state.

The finding of new species has been quite gratifying, considering the circumstances and extent of collecting, eleven in all being so far described, in the following families: Mycetophilidæ, three by Adams; Stratiomyidæ, two by Adams; Bombyliidæ, one by Williston; Dolichopodidæ, two by Aldrich; Phoridæ, one by Brues; Syrphidæ, one by Snow; and Borboridæ, one by Adams. All these are designated in the list by the term "type" following the name of each one. Eight species and three varieties are herewith described by me as new, three species and one variety being in the family Bombyliidæ, three species and two varieties in the family Asilidæ, and two species in the family Borboridæ.

Family Tipulidæ.

Dicranomyia longipennis Schum. Kansas, Douglas county; May, at night; August. New to the Kansas list.

Helobia hybrida Meigen (= punctipennis Meigen). Kansas, Douglas county; March; April; May, at night (some with mites attached on abdomen); October.—Colorado, Colorado Springs; August.

Gnophomyia tristissima O. S. Kansas, Douglas county; June, twilight.

Pachyrhina ferruginea Fab. Kansas, Douglas county; May, June, August. New to Kansas.—Colorado, Denver; August.

Family PSYCHODIDÆ.

Psychoda alternata Say. Kansas, Douglas county; April; May; June, twilight; August.

Family CHIRONOMIDÆ.

(Due appreciation of the valuable work of Prof. O. A. Johannsen in determining nearly all of the species whose names are listed in this family is hereby gratefully acknowledged. But for his generous services, the midges of Kansas would not be so thoroughly known. The generic names given here are arranged according to the rank given them by Professor Johannsen in New York State Museum Bulletin No. 86.)

Ceratopogon albarius Coq. Kansas, Douglas county; July, at electric light.

bipunctatus Linne. Kansas, Douglas county; May, in window; June, twilight; August. Sedgwick county, April. New to the Kansas list.—Colorado, Colorado Springs, August. (Not listed in Aldrich's catalogue, but mentioned in N. Y. State Mus. Bull. No. 86, p. 100. Very similar if not identical with *squamipes*, determined by himself.)

pergandei Coq. Kansas, Sedgwick county; April.

pilosulus Coq. Kansas, Douglas county; September, at electric light. New to Kansas.

specularis Coq. Kansas, Douglas county; May. New to Kansas.

squamipes Coq. (See remark about *bipunctatus* Linne.) Kansas, Douglas county; April, at night; May, in windows of house in early morning; May, at night; June; June, at night; July; August; September. New to Kansas.

subasper Coq. Kansas, Douglas county; June, July.—Colorado, Colorado Springs; August.

variipennis Coq. Kansas, Douglas county; May, at night.

Ablabesmyia (Tanypus) carnea Fab., var. *b* Joh. Kansas, Douglas county; April. New to Kansas. (Not listed in Aldrich's catalogue, but references are given in N. Y. State Mus. Bull. No. 86, p. 140.)

monilis Linne. Kansas, Douglas county; April. New to Kansas.

nigropunctata Staeg. Kansas, Douglas county; June; June at night; July. New to Kansas. (Not listed in Aldrich's catalogue, but references are given in N. Y. State Mus. Bull. No. 86, p. 155.)

Tanypus stellatus Coq. Kansas, Douglas county; September, at electric light. New to Kansas.

Chironomus albipennis Meigen. Kansas, Douglas county; July, at electric light. New to Kansas. "Defective specimen, but resembles *albipennis*," is the remark by Professor Johannsen. (Not listed in Aldrich's catalogue, but references are given in N. Y. State Mus. Bull. No. 86, p. 223.)

attenuatus Wlk. Kansas, Douglas county; June; July, at electric light; August. New to Kansas.

decorus Joh. (N. Y. State Mus. Bull. 86, p. 39.) Kansas, Douglas county; May, June; July, at electric light; September, at electric light. New to Kansas.

Family CHIRONOMIDÆ.

Chironomus flavus Joh. (N. Y. State Mus. Bull. 86, p. 225.) Kansas, Douglas county; July, at electric light; August; September, at electric light. New to Kansas.

frequens Joh. (N. Y. State Mus. Bull. 86, p. 230.) Kansas, Douglas county; July and August, all at electric light. New to Kansas.

fulviventris Joh. (N. Y. State Mus. Bull. 86, p. 229.) Kansas, Douglas county; July, at electric light. New to Kansas.

fulvus Joh. (N. Y. State Mus. Bull. 86, p. 224.) Kansas, Douglas county; June, at electric light. New to Kansas.

fumidus Joh. (N. Y. State Mus. Bull. 86, p. 221.) Kansas, Douglas county; July, at electric light. New to Kansas.

halteralis Coq., var. Kansas, Douglas county; July, at electric light. New to Kansas.

hyperboreus Staeg. Colorado, Colorado Springs; April.

lineatus Say. Kansas, Douglas county; July, at electric light. New to Kansas.

modestus Say. Kansas, Douglas county; June. New to Kansas.

nigricans Joh. (N. Y. State Mus. Bull. 86, p. 219.) Kansas, Douglas county; July, at electric light. New to Kansas.

pallidus Joh. (N. Y. State Mus. Bull. 86, p. 230.) Kansas, Douglas county; June, twilight; July, at electric light. New to Kansas. "Resembles *pallidus*," is the *dictum* of Professor Johannsen.

riparius Meigen. Kansas, Douglas county; March, April. New to Kansas.

scalænus Schrank, var. Kansas, Douglas county; June, twilight. New to Kansas.

similis Joh. (N. Y. State Mus. Bull. 86, p. 236.) Kansas, Douglas county; May; May, twilight; June, at night; September, in window. New to Kansas.

stigmaterus Say. Kansas, Douglas county; July and September, all at electric light. New to Kansas.

tentans Fab. Colorado, Colorado Springs; August.

Cricotopus sylvestris Fab. Kansas, Douglas county; April. New to Kansas.

trifasciatus Panz. Kansas, Douglas county; September, at electric light. New to Kansas. (Not listed in Aldrich's catalogue but references are given in N. Y. State Mus. Bull. 86, p. 253.)

Comptocladius byssinus Schrank. Kansas, Douglas county; April, May. Sedgwick county; April. New to Kansas.—Colorado, Colorado Springs; April. Tabernash; August.

Orthocladius nivoriundus Fitch. Kansas, Douglas county; May. (Unfortunately the only specimen was lost from mount in transit.) New to Kansas.

politus Coq. Kansas, Douglas county; July, at electric light. New to Kansas.—Colorado, Colorado Springs; April, July, August.

Tanytarsus nigripilus Joh. (N. Y. State Mus. Bull. 86, p. 287.) Kansas, Douglas county; March; April, at night. New to Kansas.

Family CULICIDÆ.

Anopheles maculipennis Meigen. Kansas, Douglas county; August.

punctipennis Say. Kansas, Douglas county; April, in window of house; August; August, twilight; December.

Janthinosoma musica Say. Kansas, Douglas county; June, July.

Psorophora ciliata Fab. Kansas, Douglas county; September, at night.

Culex consobrinus Desv. Kansas, Douglas county; March, at night; April; May, twilight; June; October (most abundant in this month); October, at night in house; November (all determined by Dr. E. P. Felt). On Kansas list as *inornatus* Will.

impiger Wlk. Kansas, Douglas county; May, at night; July; July, twilight (all determined by Dr. E. P. Felt, who considers specimens by this name as distinct from *nigripes* Zett.) New to Kansas list.

inornatus Will. Kansas, Douglas county; March; April; May, at night (determined by Dr. C. F. Adams). Similar specimens were identified as *consobrinus* Desv. by Dr. E. P. Felt. However, Doctor Williston has declared that his species cannot possibly be *consobrinus*.

pipiens Linne. Kansas, Douglas county; May; June; June, twilight; August; November (all known in collection as *fatigans* Wied.); June, twilight, and July, twilight (determined by Dr. H. G. Dyar). New to the Kansas list.—Colorado, Denver; August (determined by Dr. H. G. Dyar).

restuans Theob. Kansas, Douglas county; May; May, twilight; June; June, twilight; July, twilight; August; August, twilight; September, in house; October (all determined by Dr. E. P. Felt). New to the Kansas list.

sylvestris Theob. Kansas, Douglas county; April; May, at night and in house; June; June, twilight; July; July, twilight; August; October. New to Kansas.—Colorado, Denver; August (determined by Dr. H. G. Dyar).

tarsalis Coq. Kansas, Douglas county; April; June, twilight; August, October, November (all determined by Dr. E. P. Felt); June, twilight (determined by Dr. H. G. Dyar); also, July, twilight (compared).—Colorado, Denver and Colorado Springs; August (determined by Dr. H. G. Dyar).

triseriatus Say. Kansas, Douglas county; May (bred in University museum from foul water in pail containing bones placed there to soak; determined by Dr. L. O. Howard); June; June, twilight; July, twilight; August.

Tæniorhynchus perturbans Wlk. Kansas, Douglas county; August, twilight. New to Kansas.

Aëdes (Culex) abfitchii Felt.? Colorado, Tabernash; August (determined by Dr. H. G. Dyar, from a single badly rubbed specimen).

Sayomyia punctipennis Say. Kansas, Douglas county; July, at electric light (determined by O. A. Johannsen); August, at night (determined by Dr. E. P. Felt). New to Kansas.

Family Mycetophilidæ.

Ceroplatus apicalis Adams. Kansas, Douglas county; August (type).
terminalis Coq. (Jour. N. Y. Ent. Soc., 1905, p. 69.) Kansas, Douglas county; July, September. New to Kansas.
Sciophila nigricauda Adams. Colorado, Bear Creek canyon, near Colorado City; July (type).
Neoglaphyroptera bivittata Say. Kansas, Douglas county; August; August, twilight; October.
cuneola Adams. Colorado, Colorado Springs; August (type).
oblectabilis Loew. Kansas, Douglas county; July, twilight; August; September; October.
Mycetophila contigua Wlk. Kansas, Douglas county; March. New to Kansas.
discoidea Say. Kansas, Douglas county; March. New to Kansas.
Zygoneura toxoneura O. S. Kansas, Douglas county; April, August.

Family Cecidomyidæ.

Several specimens, no two alike; cannot be determined for want of their galls.

Family Bibionidæ.

Plecia plagiata Wied. (= heteroptera Say). Kansas, Douglas county; October.
Bibio albipennis Say. Kansas, Douglas county; May, at lamplight.
articulatus Say. Kansas, Douglas county; April, May. New to Kansas.
femoratus Wied. Kansas, Douglas county; April.
pallipes Say. Kansas, Douglas county; April; May, at night. Sedgwick county; April.
Dilophus serotinus Loew. Kansas, Douglas county; October. New to Kansas.
Scatopse atrata Say. Kansas, Douglas county; April. New to Kansas.
notata Linne. Kansas, Douglas county; April, in window; May. New to Kansas.—Colorado, Tabernash; August.
pygmæa Loew. Kansas, Douglas county; April. New to Kansas.

Family Rhyphidæ.

Rhyphus alternatus Say. Kansas, Douglas county; April. New to Kansas.
punctatus Fab. Kansas, Douglas county; April; June; June, twilight; July, twilight. New to Kansas.

Family Stratiomyidæ.

Allognosta fuscitarsis Say. Kansas, Douglas county; May, June, July, August. New to Kansas.
Ptecticus trivittatus Say. (=similis Will.) Kansas, Douglas county; June, on heaps of decomposing vegetable and fruit refuse; June; July; August, among vines and weeds and hovering about garbage from house.

Family STRATIOMYIDÆ.

Sargus decorus Say. Kansas, Douglas county; May; May, at night; June; July; September, mostly hovering in shady places or at twilight. —Colorado, Manitou; July.

elegans Loew. Kansas, Douglas county, July. New to Kansas.

viridis Say. Kansas, Douglas county; June. Sedgwick county; April.—Colorado, Colorado Springs; July.

Stratiomyia apicula Löew. Kansas, Douglas county; September.

Euparyphus albipilosus Adams. (Erroneously spelled *albipilus* in Aldrich's catalogue.) Colorado, Colorado Springs; August (type).

mutabilis Adams. Colorado, Colorado Springs; August (type).

Family TABANIDÆ.

Chrysops fulvaster O. S. Colorado, Colorado Springs; July, August.

Tabanus costalis Wied. Kansas, Douglas county; July.

exul O. S. Kansas, Sedgwick county; August.

lineola Fab. Kansas, Douglas county; June, August.

punctifer O. S. Colorado, Colorado Springs; July.

quinquevittatus Wied. Kansas, Douglas county; June. New to Kansas.

sulcifrons Macq. Kansas, Douglas county; July, August, September.

Family LEPTIDÆ.

Xylomyia pallipes Loew. Kansas, Douglas county; May; June; July, twilight.—Colorado, Denver; August.

Chrysopila flavibarbis Adams. Colorado, Colorado Springs; August (compared with types).

humilis Loew. Colorado, Colorado Springs; August.

modesta Loew. Kansas, Douglas county; June; July; July, twilight.

quadrata Say. Kansas, Douglas county; June.

testaceipes Bigot. Colorado, Cheyenne canyon; July. Colorado Springs; August.

Hilarimorpha mikii Will. Colorado, Colorado Springs; July.

Family BOMBYLIIDÆ.

Spogostylum pauper Loew. Kansas, Douglas county; July.

Exoprosopa caliptera Say. Colorado, Buffalo; August.

There is very slight difference only in pattern of wings, and that may be due to variation, between this and *capucina* Fab.

Exoprosopa capucina Fab. Colorado, Buffalo; August.

fasciata Macq. Kansas, Sedgwick county; August. Douglas county; September.

Anthrax alcyon Say (erroneously halcyon). Colorado, Manitou, Colorado Springs, Denver, and Buffalo; August.

Anthrax alta, new species. Colorado, Colorado Springs; August, 1906, one female specimen. Type in collection of the University of Kansas.

Somewhat similar to *inculta* Coq., especially on account of the band of white tomentum on front and margins of thorax, and continuing on across base of scutellum, but differs in the following particulars: To-

Family BOMBYLIIDÆ.

Anthrax alta—*continued.*

mentum of entire front golden yellow, all pile black; face sharply produced below, proboscis lies entirely within the oral cavity, the margins of which are luteous. The eyes, which are emarginate on the posterior sides, are bordered behind with white tomentose, as with *inculta*, back of which is a narrow space covered with dusky tomentose, and this is fringed on posterior margin with short fulvous pile, meeting the long, dense, similarly colored pile on the front of the thorax. Bristles of thorax and scutellum yellow. Fifth and sixth ventral segments of the abdomen are covered with black tomentose, the fifth slightly margined behind with yellow; sparse black pile on all segments of venter similar to that on the dorsal surface.

With reference to the dark areas of the wings, a description of the specimen in this respect is added here. Costal and subcostal cells, the latter as far as tip of costal vein, the marginal for nearly half its length, though faintly at base, and first basal cell clouded with a fuliginous cast extending from base of wing, and which envelops the basal bend of the second vein and the anterior cross-vein. The posterior cross-vein bisects a circular dusky spot and faint dusky spots appear at the base and furcation of the fifth vein, besides a streak which extends along the anterior portion of second basal cell. Halteres yellow with the tip pale, spoon-shaped. Length, 6.5 mm.; wing, 6 mm.

Anthrax alternata Say. Colorado, Denver and Colorado Springs; August.

agrippina O. S. Colorado, Denver; August.

arethusa O. S. Colorado, Manitou; August.

Anthrax comparata, new species. Colorado, Colorado Springs; August, 1894. Two types in the collection of the University of Kansas.

The specimens agree in size and general appearance with *cinefacta* Coq., according to his description of that species, but differ in the following respects: Face wholly black, without any groove in the middle; legs wholly black. Pile of breast and coxæ black, and bristles on middle of posterior margin of scutellum black. Sparse pile on abdomen, at least such as remains on edges, and on the posterior margins of the last three ventral segments, black. Otherwise these ventral segments are black tomentose. Described from specimens which are badly denuded, but still in condition to warrant the establishment of a species.

Anthrax muscaria Coq. Colorado, Denver and Colorado Springs; August.

Anthrax nebulo Coq. Colorado, Denver; August.

Agrees well with description, except that fore tibiæ are not completely destitute of bristles, and size is larger, 12 mm. instead of 9 mm., but being a female specimen, this difference may easily be allowable. In comparison with *ænea* Coq., to which the description refers, the first antennal joint is larger than the second, and the third is conical instead of subglobular at base.

Anthrax sinuosa Wied. Kansas, Douglas county; July.—Colorado, Denver and Colorado Springs; August.

Family Bombyliidæ.

Anastœchus melanohalteralis, new species. Colorado, Buffalo, Platte canyon; August, 1906; a male and female specimen. Types in the collection of the University of Kansas.

The main reason for establishing this species in comparison with *nitidulus* Fab. (= *barbatus* O. S.), depends on the enlarged black tips of the halteres, which are scoop-shaped or rather obliquely flattened, with edges incurved backward. Stalk of halteres yellow, veins of wings mainly yellow. Aside from the larger size and darker fuliginous wings, the structure and color of the halteres appear of sufficient value to characterize a species distinct from *nitidulus*. Authentic specimens of the latter exhibit yellow halteres with pale knobs, which have an oblique shallow-pitted face directed backwards. Length from front of eyes to tip of abdomen, 8 mm.; wings are slightly longer than body.

Anastœchus melanohalteralis, new species, fulvipennis, new variety. Same locality and date as above; one male specimen. Type in collection of the University of Kansas.

Apparently not different from typical *melanohalteralis* except in larger size and color of wings, which are tinged with brown over half their width anteriorly for two-thirds of their length; apex and posterior margin subhyaline. Length from front of eyes to tip of abdomen, 10 mm.; wing, 11 mm.

Anastœchus nitidulus Fab. Colorado, Colorado Springs; August.

Systœchus candidulus Loew. Kansas, Douglas county; August.

vulgaris Loew. Kansas, Sedgwick county; August.—Colorado, Colorado Springs; August.

Phthiria sulphurea Loew. Colorado, Colorado Springs and Denver; August.

Sparnopolius coloradensis Grote. Colorado, Colorado Springs and Buffalo; August.

fulvus Wied. Kansas, Douglas county; September.

Aphœbantus marcidus Coq. Colorado, Colorado Springs; August.

Desmatomyia anomala Will. Colorado, Garden of the Gods; July (type of genus and species).

Geron senilis Fab. Colorado, Colorado Springs; August.

Family Therevidæ.

Psilocephala hæmorrhoidalis Macq. Kansas, Douglas county; June.

Thereva melanoneura Loew. Kansas, Douglas county; May. New to Kansas.

Family Scenopinidæ.

Scenopinus fenestralis Linne. Kansas, Douglas county; June; July; July, at electric light.

Family Mydaidæ.

Mydas clavatus Drury. Kansas, Douglas county; July, flying about and resting on old, rotten apple stump, in bright sunlight in middle of day.

Family ASILIDÆ.

Ospriocerus abdominalis Say. Colorado, Colorado Springs; August.

Scleropogon picticornis Loew. Kansas, Sedgwick county; August. New to Kansas.

Triclis tagax Will. Kansas, Douglas county; June.

Cyrtopogon profusus O. S. Colorado, Manitou; July.

Holopogon phæonotus Loew. Colorado, Green Mountain Falls; July.

Stichopogon trifasciatus Say. Colorado, Colorado Springs; August.

Heteropogon phœnicurus Loew. Kansas, Douglas county; August. New to Kansas.

Deromyia angustipennis Loew. Kansas, Sedgwick county; August, on open prairie.

platyptera Loew. Kansas, Douglas county; July.

ternata Loew. Kansas, Douglas county; July, twilight, flying close under leaves of vines, bushes and weeds of back yards in town; only noticed in the past two years; reported as an enemy of the honey-bee in country. New to Kansas.

winthemi Wied. (=misellus Loew). Kansas, Douglas county; August.

Taracticus octopunctatus Say. Kansas, Douglas county; June.

Cerotainia macrocera Say. Kansas, Douglas county; July. New to Kansas.

Atomosia puella Wied. Colorado, Colorado Springs; July.

Lampria rubriventris Macq. Kansas, Sedgwick county; August.

Protacanthus milbertii Macq. Kansas, Douglas county; August.—Colorado, Colorado Springs; August.

Erax aridus Will. Colorado, Colorado Springs; August.

bastardii Macq. Kansas, Douglas county; July. New to Kansas.

stamineus Will. Colorado, Buffalo; August, including first female specimen for University collection.

Mallophora clausicella Macq., n. var., intermedia. Colorado, Buffalo, Platte canyon; August. Types in collection of the University of Kansas.

The specimens appear to be intermediate forms between *clausicella* Macq. and *megachile* Coq. One specimen has first posterior cell of wing slightly open, but the pile of thorax is black; only one out of three specimens is destitute of black pile on thorax. Length of body ranges from 13 to 15 mm., which measurement is about the same as for *clausicella*, but above that given for *megachile*. The antennal style is as long as with *megachile*.

Promachus vertebratus Say. Kansas, Sedgwick county; August.

Tolmerus annulipes Macq., new variety, delusus. Kansas, Douglas county; June, four females, one male.—Colorado, Colorado Springs; August, one male. Types in the collection of the University of Kansas. New variety for Kansas list.

These specimens merely differ from typical *annulipes* Macq. in the coloration of all the femora, the posterior surface being entirely red, except on the hind pair, where the red is narrowed to a streak.

Tolmerus mesæ, new species. Colorado, Colorado Springs; August, collected on mesa and foot-hills in vicinity of the city. Types: Two males and three females taken in 1894, and one female captured during the summer of 1906, all in the collection of the University of Kansas.

Family ASILIDÆ.

Tolmerus mesæ—*continued.*

Front and face yellowish gray pollinose; gibbosity occupying more than half of the face, clothed with long, pale yellow bristles, the upper part bearing a few short black ones in most cases; all other bristles of front, occiput, and orbits, and hair of cheeks, fore and middle coxæ, pale yellow. Antennæ black, third joint longer than first and second joints together, terminal bristle less than half its length. The first and second antennal joints are clothed with short grayish hair, which is very scanty on the second. Vertex narrow, but little wider than length of first antennal joint, deeply excavated. Dorsum of thorax marked with the two usual median black stripes, very slightly and faintly separated, and two cloudy spots on each side. The dorsum bears strong yellow bristles, laterally and posteriorly; a few on the middle area black. Scutellum with two yellow bristles curved upward and forward from posterior margin. The greater portion of thorax and abdomen is grayish opaque pollinose. Apical margins of abdominal segments are narrowly luteous. Male genitalia prominent, almost straight, if not a little tapering in outline, wholly reddish, together with ventral plates. Oviduct of females piceous, excepting under side of base, which is reddish. Halteres brown.

Femora entirely black; tibiæ and metatarsi red, infuscated towards apices, remaining tarsal joints piceous, excepting basal connections, which are red. Wings hyaline, very faintly clouded on apical portion. Auxiliary and first longitudinal veins entirely, and other veins at base of wing, bright yellow. Greatest length of male, 10 mm.; of female, 12.5 mm.

Tolmerus prairiensis, new species. Kansas, Sedgwick county; August, collected on prairie. Type: One female specimen in collection of the University of Kansas. For the Kansas list.

Front and face bright yellow pollinose, gibbosity occupying more than half of the face, middle part clothed with long yellow bristles, perhaps not more than two black ones, which are quite short, on upper part. Antennæ black excepting extreme apex of second and base of third joints, which portions are tinged with red, first joint clothed with both black and gray hair, second joint with short black hair, third joint a little longer than the first two together, terminal bristle about half as long as the third joint. A short row of white bristles extend upward on each side of front from insertions of antennæ. All bristles on the occiput and orbits, and hairs on the cheeks, fore and middle coxæ, pale yellow. General color of the thorax and abdomen grayish opaque pollinose, the two median black stripes on the dorsum of thorax indistinctly separated, and the two lateral dark spots, one on each side, are somewhat blended into the stripes, probably due largely to discoloration. The dorsum of thorax bears long bristles sparsely placed, yellow on the sides and posterior region, black on the middle area. Scutellum with two yellow bristles curved upward and forward from posterior margin. Apical margin of each abdominal segment reddish to a rather wide extent, oviduct shining piceous tinged with red, its lateral compressions slightly spread apart on under edge.

Family ASILIDÆ.

Tolmerus prairiensis—*continued.*

All femora are black on anterior surface excepting preapical red space, posterior surface red; tibiæ red, infuscated or striped with black on anterior surface, the fore and middle pair being encircled with black at tips; tarsal joints red, infuscated on distal portions, and differs in this respect from *annulipes* Macq. in not being distinctly annulated with black, besides most of the bristles on legs and tarsi are white. Apical portion of wings faintly clouded, including spot in fourth posterior cell. Length, 20 mm.; wing, 10 mm.

Tolmerus prospectus, new species. Colorado, Colorado Springs; August, collected on plains in vicinity of the city. Types: Two male specimens in the collection of the University of Kansas.

Front and face yellowish pollinose, the gibbosity, which occupies more than half of the face, is clothed above with black bristles, below with longer yellow bristles, bordered on each lower side with three black ones of nearly equal length. Antennæ black, the first joint clothed with both yellow and black hair, the second with short, black hair, the third joint being equal in length to the first two together; terminal bristle somewhat shorter than the third joint. Front a little wider above than length of first antennal joint, sunken, bordered on each side just above insertions of antennæ with a short row of pale bristles, beyond which the hair is black, short, and sparse, but distinct on ocellar tubercle. Occipito-orbital bristles wholly pale yellow, joining the long white, silky beard on the cheeks. A long white pubescence covers the fore part of anterior coxæ and fore tips of middle coxæ. General color of thorax and abdomen grayish opaque pollinose; the two black median stripes on dorsum of thorax are faintly separated from each other as well as from the two large dark spots, one on either side. Halteres brown. Dorsum of thorax fringed laterally with long yellow bristles sparsely placed, including a black one on each side; on the posterior middle area there are shorter black bristles; scutellum with two yellow bristles curving upward and forward from posterior margin.

Femora black, with preapical red band; fore and middle tibiæ red, infuscated at middle on front side and black at tip, posterior pair red excepting a black stripe or infuscation along outer surface; tarsal joints reddish and somewhat infuscated. Tips of wings faintly clouded. Genitalia black, with well rounded and slightly curved tips, ventral plates reddish, split with distinct medial and lateral grooves. Length, 13 mm.; wings, 8.5 mm.

In consequence of my study of the series of specimens representing the genus *Tolmerus*, the following table has been prepared as an aid for the disposition of the species:

TOLMERUS—KEY TO SPECIES, EXCLUSIVE OF THE MEXICAN.

1. Occipito-orbital bristles both black and yellow, gibbosity of face clothed with black and yellow bristles about equal in number... 2
   Occipito-orbital bristles all yellow, gibbosity of face mostly clothed with yellow bristles, black ones scarce if not entirely wanting.. 5

2. Femora wholly black, tibiæ and metatarsi more or less banded with red.....*notatus* Wied.
   Femora black with preapical red band, tibiæ and metatarsi mainly red..... 3
3. Second and following joints of tarsi banded with black 4
   Tarsal joints wholly red or pitchy black, gibbosity of face very large, legs extra stout ..... *callidus* Will.
4. Red on femora confined to preapical band, tarsal joints annulated with black .....*annulipes* Macq.
   Red on femora extending over whole length of posterior surface.....*delusus*, n. var.
5. Femora entirely black, length of body only 10 to 12.5 mm., *mesæ*, n. sp.
   Femora with red markings..... 6
6. Red on femora confined to preapical band.....*prospectus*, n. sp.
   Red on femora extending over whole length of posterior surface, *prairiensis*, n. sp.

Asilus tenebrosus Will. Colorado, Colorado Springs; July.

Family DOLICHOPODIDÆ.

Psilopodinus caudatus Wied. Kansas, Douglas county; May, June, July.—Colorado, Colorado Springs; August. Four anterior femora of male are yellow on distal portion for nearly one-fourth their length, more noticeable than with *scobinator* Loew, and tips of hind tibiæ are less infuscated than with that species. Both sexes.

melampus Loew. Colorado, Colorado Springs; July and August. Denver; August.

patibulatus Say. Kansas, Douglas county; July, August, September.

scobinator Loew. Kansas, Douglas county; June, twilight. One male. New to Kansas.

sipho Say. Kansas, Douglas county; May; June; June, twilight; July; July, twilight; August. Sedgwick county; August.

Diaphorus leucostoma Loew. Kansas, Douglas county; June, twilight; July.—Colorado, Colorado Springs; July, August. Denver; August.

spectabilis Loew. Kansas, Douglas county; June, twilight; July, twilight; August. New to Kansas.

Asyndetus syntormoides Wheeler. Kansas, Douglas county; July. New to the Kansas list.

Chrysotus auratus Loew. Kansas, Douglas county; June. New to Kansas.

longimanus Loew. Kansas, Douglas county; July. New to Kansas.—Colorado, Colorado Springs; August.

obliquus Loew. Kansas, Douglas county; June, twilight; July; August. New to Kansas.—Colorado, Denver; August.

pallipes Loew. Kansas, Douglas county; July, twilight. New to Kansas.

picticornis Loew. Kansas, Douglas county; August. New to Kansas.

vividus Loew. Kansas, Douglas county; May. New to Kansas.

Family DOLICHOPODIDÆ.

Porphyrops effilatus Wheeler. Colorado, Colorado Springs; July.

Sympycnus lineatus Loew. Kansas, Douglas county; May; May, at night; June; June, twilight; July, twilight. New to Kansas.

Nothosympycnus nodatus Loew. Kansas, Douglas county; June.

Dolichopus aldrichii Wheeler. Colorado, Tabernash (8310 feet); August. One male and five female specimens.

amnicola Mel. & B. Colorado, Tabernash (8310 feet); August. One female specimen.

bifractus Loew. Kansas, Douglas county; May; May, at night; June.—Colorado, Colorado Springs; August.

cuprinus Wied. Kansas, Douglas county; June; June, twilight. —Colorado, Denver; August.

eudactylus Loew. Kansas, Douglas county; June.

longipennis Loew. Kansas, Douglas county; June; June, twilight; July, twilight.

obcordatus Ald. Colorado, Colorado Springs; August. Denver; August.

plumipes Scopoli. Colorado, Tabernash (8310 feet); August.

scapularis Loew. Kansas, Douglas county; June; June, twilight; July.

variabilis Loew. Colorado, Colorado Springs; August.

vigilans Ald. Kansas, Douglas county; June (type).

vittatus Loew. Kansas, Douglas county; June, twilight. New to Kansas.

willistonii Ald. Kansas, Douglas county, June (types).

Gymnopternus crassicauda Loew. Kansas, Douglas county; June. New to Kansas.

humilis Loew. Kansas, Douglas county; June. New to Kansas.

Hercostomus unicolor Loew. Colorado, Green Mountain Falls; July.

Pelastoneurus vagans Loew. Kansas, Douglas county; June, July, August.

Family EMPIDIDÆ.

(The most recent determinations of species in this family were kindly made by Prof. A. L. Melander.)

Drapetis latipennis Mel. Kansas, Douglas county; June. New to Kansas. Specimen identified by Prof. A. L. Melander and marked "homotype" by him.

Platypalpus æqualis Loew. Kansas, Douglas county; August.—Colorado, Colorado Springs; July, August.

hastatus Mel. Colorado, Tabernash; August.

Tachydromia inusta Mel. Colorado, Manitou; August.

Specimens were found crawling on timbers which supported the roof of entrance to Grand Caverns. Prof. A. L. Melander, to whom some of the specimens were submitted, reported the name but added the following remark: "It may be that they represent an undescribed species, for their wings are more hyaline than any of the specimens of *inusta* I have."

Tachydromia pusilla Loew. Kansas, Douglas county; May.

Family EMPIDIDÆ.

Clinocera (Hydrodromia) bicincta Loew. Colorado, Colorado Springs; April.

Syneches pusillus Loew. Kansas, Douglas county; July, twilight. New to Kansas. Specimen without head, but doubtless this species.

Hybos triplex Wlk. Kansas, Douglas county; May.

Blepharoprocta (Brachystoma) serrulata Loew. Colorado, Colorado Springs; August. A single female specimen. Mr. Chas. T. Brues, who identified it, remarked that it is "quite a rare species."

Empis asema Mel. Colorado, Colorado Springs; July, August.

Determined by Prof. A. L. Melander, who wrote as follows in regard to the species: "The *Empis* was described from Austin, Tex., and yours is the first additional record of the species. Yours is somewhat larger, but I cannot find anything specific to distinguish it from the Texas form. The group to which this species belongs seems peculiar to the Southwest. There are quite a few species known with the shortened fourth vein, and all of them come from Mexico, New Mexico, Texas, and Kansas."

Empis clausa Coq. Kansas, Douglas county; June, July, August, and September, in window.

tenebrosa Coq. Colorado, Colorado Springs; July, August.

Rhamphomyia irregularis Loew. Kansas, Douglas county; April. New to Kansas.—Colorado, Colorado Springs; April.

nasoni Coq. Kansas, Douglas county; April; April, at night in house; May; May, twilight.

Family LONCHOPTERIDÆ.

Lonchoptera lacustris Meigen. (Not cited in Aldrich's catalogue.) Colorado, Tabernash; August.

This specimen was submitted to Mr. Chas. T. Brues, who reported on it as follows: "According to Schiner (Fauna Austr., I, 244), this seems very much like *L. lacustris* Meigen, an European species, as are also *lutea* and *riparia*."

Lonchoptera lutea Panz. Kansas, Douglas county; May. New to Kansas.

Family PHORIDÆ.

(My thanks are due to Mr. Chas. T. Brues for his special determinations in this family.)

Phora incisuralis Loew. Kansas, Douglas county; June, twilight (female). New to Kansas.

multiseriata Ald. Kansas, Douglas county; May. New to Kansas.

Aphiochæta agarici Lint. Kansas, Douglas county; May (male). New to Kansas.

epeiræ Brues. Kansas, Douglas county; May. New to Kansas.

longifrons Brues. (Bull. Wis. Nat. Hist. Soc., vol. IV, p. 100.) Kansas, Douglas county; June, twilight (male metatype). New to Kansas.

rufipes Meigen. Colorado, Denver; August.

Determined by Mr. Brues as "probably" this species, the single specimen having lost its wings.

Family PLAYTYPEZIDÆ.

Platypeza obscura Loew. Kansas, Douglas county; July, twilight.
Determination verified by Mr. Chas. T. Brues, who says it "agrees with Loew's description except for somewhat paler halteres. The specimen is in bad shape." New to Kansas.

Platypeza pallipes Loew. Kansas, Douglas county; June.
Determination verified by Mr. Chas. T. Brues, who wrote: "Agrees with the description except for darker (stained?) thorax. Undoubtedly this, I think." New to Kansas.

Platypeza velutina Loew. Kansas, Douglas county; August.—Colorado, Manitou; July.

Family PIPUNCULIDÆ.

Chalarus spurius Fal. Kansas, Douglas county; June, twilight. New to Kansas.

Pipunculus atlanticus Hough. Kansas, Douglas county; June, twilight. A female specimen which agrees well with male from Quebec, and with description, but both examples lack rows of minute black spines on anterior femora, though distinct on middle pair. New to Kansas.

cingulatus Loew. Kansas, Douglas county; August.

fuscus Loew. Kansas, Douglas county; July, twilight. New to Kansas.

nitidiventris Loew. Kansas, Douglas county; April, August.

subopacus Loew. Kansas, Douglas county; August.—Colorado, Tabernash; August.

subvirescens Loew. Colorado, Colorado Springs; August.

Family SYRPHIDÆ.

Microdon baliopterus Loew. Colorado, Garden of the Gods; July.
Described as "*Omegasyrphus* sp." by Mr. W. A. Snow, in Kan. Univ. Quart., vol. III, p. 226, and specimen has label bearing name "*pullipennis* Snow." However, Doctor Williston has declared that it is merely a variation of *baliopterus* Loew.

Chrysotoxum laterale Loew, var. Kansas, Douglas county; September. New to Kansas.

Chrysogaster bellula Will. Colorado, Colorado Springs; August.

nitida Wied. Kansas, Douglas county; October.

Pipiza pistica Will. Colorado, Manitou; July.

pisticoides Will. Kansas, Sedgwick county; April. New to Kansas.

Paragus tibialis Fal. Colorado, Colorado Springs; July, August.

Myiolepta nigra Loew. Kansas, Douglas county; May, in window. New to Kansas.

varipes Loew. Kansas, Douglas county; May. New to Kansas.
This specimen was examined by Prof. J. S. Hine, who reported upon it as follows: "The *Myiolepta* is small and the legs are light colored, but I think it is *M. varipes* Loew. I have a series of this species and there is great variation in size and in the color of legs. Some of my specimens are as small as yours."

Baccha clavata Fab. Kansas, Douglas county; data lost. Sedgwick county; August.

Family SYRPHIDÆ.

Ocyptamus fuscipennis Say. Kansas, Douglas county; July. New to Kansas.

Platychirus palmulosus Snow. Colorado, Colorado Springs; August (type).
peltatus Meigen. Colorado, Green Mountain Falls; July.
quadratus Say. Kansas, Douglas county; April, May.

Eupeodes volucris O. S. Colorado, Colorado Springs, Denver, Buffalo, and Tabernash; all in August.

Lasiophthicus pyrastri Linne. Colorado, Colorado Springs and Denver; August.

Syrphus abbreviatus Zett. Kansas, Douglas county; April.
americanus Wied. Kansas, Douglas county; April. Sedgwick county; August.—Colorado, Denver and Colorado Springs; August.
opinator O. S. Colorado, Denver; August.
ribesii Linne. Kansas, Douglas county; March, April, October.

Allograpta obliqua Say. Kansas, Douglas county; April; May; June; July; July, twilight; October.—Colorado, Colorado Springs; July. Cheyenne canyon; July. Denver; August.

Mesogramma geminata Say. Kansas, Douglas county; April; July, twilight.
marginata Say. Kansas, Douglas county; April; April, at night; May, at night; June; July; August.—Colorado, Garden of the Gods; July. Colorado Springs; July, August. Denver; August.
polita Say. Kansas, Douglas county; August. Sedgwick county; August.

Sphærophoria cylindrica Say. Colorado, Garden of the Gods; July. Colorado Springs; July, August.

Rhingia nasica Say. Kansas, Douglas county; June twilight. New to Kansas.

Eristalis latifrons Loew. Colorado, Colorado Springs; August.
meigenii Wied. Colorado, Colorado Springs; July, August.
temporalis Thoms. Colorado, Manitou; August.
tenax Linne. Kansas, Douglas county; October. (See remark about capture by *Phymata erosa* Linne, in "List of Hemiptera-Heteroptera.")—Colorado, Colorado Springs; August.

Helophilus lætus Loew. Colorado, Colorado Springs; August.
latifrons Loew. Colorado, Colorado Springs; August.

Syritta pipiens Linne. Kansas, Douglas county; June, July.—Colorado, Cheyenne canyon; July. Colorado Springs; July, August. Denver; August.

Spilomyia quadrifasciata Say. Kansas, Douglas county; October. (My capture of the first specimen taken in Kansas, in 1891, was regarded with surprise.)

Ceria willistonii Kahl. Kansas, Douglas county; June. A single male specimen. New to the Kansas list, although the types (all female specimens) were collected in this locality.

Family CONOPIDÆ.

Stylogaster biannulata Say. Kansas, Douglas county; June, October.

Oncomyia loraria Loew. Colorado, Denver; August.

Myopa vesiculosa Say. Kansas, Douglas county; April.

Family Œstridæ.

Gastrophilus equi Clark. Kansas, Douglas county; October, on a warm, sunny day, resting on the support of the wind instruments above the tower of a University building, 105 feet from the ground.

Family Tachinidæ.

Gymnosoma fulginosa Desv. Kansas, Sedgwick county; April.
Myiophasia ænea Wied. Colorado, Buffalo and Colorado Springs; August.
Cryptomeigenia theutis Wlk. Kansas, Douglas county; June.
Eulasiona comstockii Towns. Kansas, Douglas county; April. New to Kansas.
Plectops melissopodis Coq. Kansas, Douglas county; October. New to Kansas.
Hypostena barbata Coq. Kansas, Sedgwick county; April. New to Kansas.
Leucostoma atra Towns. Colorado, Colorado Springs; August.
Hemyda aurata Desv. Kansas, Douglas county; August, October.
Siphona geniculata De G. Kansas, Douglas county; June, twilight; July, August; August, twilight.
Heteropterina nasoni Coq. Colorado, Colorádo Springs; August.
Plagia americana Van der W. Kansas, Douglas county; July, August.—Colorado, Colorado Springs; August.
Siphoplagia anomala Towns. Colorado, Colorado Springs; August.
Senotainia trilineata Van der W. Kansas, Douglas county; August.
Exorista blanda O. S. Kansas, Douglas county; June, twilight; July. New to Kansas.—Colorado, Denver; August.
griseomicans Van der W. Kansas, Douglas county; May. New to Kansas.
pyste Wlk. Kansas, Douglas county; July, twilight.
Phorocera doryphoræ Riley. Colorado, Tabernash; August.
leucaniæ Coq. Kansas, Douglas county; July. New to Kansas.
Sturmia albifrons Wlk. Colorado, Colorado Springs; August.
Acemyia dentata Coq. Kansas, Douglas county; October. New to Kansas.
Euthera tentatrix Loew. Kansas, Douglas county; July.
Tachina robusta Towns. Kansas, Douglas county; April, May. New to Kansas.
rustica Fal. Colorado, Buffalo; August.
Blepharipeza leucophrys Wied. Colorado, Colorado Springs; August.
Winthemia quadripustulata Fab. Kansas, Douglas county; May; May, at night; June; July; September; October.
Paradidyma singularis Towns. Kansas, Douglas county; May; June.
Phorichæta sequax Will. Kansas, Douglas county; April.
Metopia leucocephala Rossi. Colorado, Colorado Springs; August.
Hilarella aristalis Coq. Kansas, Douglas county; July. New to Kansas.
Gonia capitata De G., var. sequax Will. Colorado, Colorado Springs; August.
Trichophora ruficauda Van der W. Kansas, Douglas county; September.
Cuphocera furcata Van der W. Kansas, Douglas county; September.
Peletaria robusta Wied. Colorado, Buffalo; August.
tessellata Fab. Colorado, Colorado Springs; August.
Archytas analis Fab. (=Jurinia apicifera Will.) Kansas, Douglas county; June, July, September.

Family TACHINIDÆ.

Archytas aterrima Desv. (=Jurinia smaragdina Macq.) Kansas, Douglas county; September.
hystrix Fab. (=Jurinia hystricoides Will.) Kansas, Douglas county; September.
Echinomyia dakotensis Towns. Colorado, Buffalo; August.
Paradejeania rutilioides Jæn. Colorado, Colorado Springs; August.

Family DEXIIDÆ.

Myiocera cremides Wlk. Colorado, Colorado Springs; August.
Melanophora roralis Linne. Kansas, Douglas county; May, June, July, September. New to Kansas.

Family SARCOPHAGIDÆ.

(Numerous specimens await determination, since no authority cares to work with them.)

Sarcophaga (Helicobia) helicis Towns. Kansas, Douglas county; July. Sedgwick county; April. New to Kansas.—Colorado, Denver; August.

Family MUSCIDÆ.

Pollenia rudis Fab. Colorado, Colorado Springs; August.
Cynomyia cadaverina Desv. Kansas, Douglas county; April.
Calliphora erythrocephala Meigen. Kansas, Douglas county; May, common in windows; June, twilight.—Colorado, Denver; August.
latifrons Hough. Colorado, Tabernash; August.
Lucilia cæsar Linne. Kansas, Douglas county; July, October.
sericata Meigen. Kansas, Douglas county; June, twilight.—Colorado, Denver and Colorado Springs; August.
sylvarum Meigen. Kansas, Douglas county; July, twilight.—Colorado, Denver; August.
Phormia regina Meigen. Kansas, Douglas county; May, June, July.—Colorado, Denver and Tabernash; August.
Morellia micans Macq. Kansas, Douglas county; May; June; June, twilight.—Colorado, Denver and Tabernash; August.
Musca domestica Linne. Kansas and Colorado.
Stomoxys calcitrans Linne. Kansas, Douglas county; June, July, August, October.—Colorado, Tabernash; August.
Myospila meditabunda Fab. Colorado, Tabernash; August.
Muscina stabulans Fal. Kansas, Douglas county; April; June; June, twilight; July, twilight.—Colorado, Denver, Tabernash, and Colorado Springs; August.

Family ANTHOMYIDÆ.

Hyetodesia (Phaonia) mulcata? Giglio-Tos. Kansas, Douglas county; April. New to Kansas.
Limnophora narona Wlk. Kansas, Douglas county; June; July; July, twilight. Sedgwick county; April. New to Kansas.—Colorado, Green Mountain Falls; July. Colorado Springs; July, August. Denver and Tabernash; August.
Hylemyia lipsia Wlk. Kansas, Douglas county; April; June; July; July, twilight; August. New to Kansas.

Family ANTHOMYIDÆ.

Phorbia cinerella Fal. Kansas, Douglas county; May.—Colorado, Colorado Springs; April. Denver and Tabernash; August.

fusciceps Zett. Kansas, Douglas county; April; April, at night; June; June, twilight. Sedgwick county; April. New to Kansas.—Colorado, Colorado Springs; April. Denver; August.

Cœnosia lata Wlk. (=canescens Stein, as Mr. Coquillett determined it). Kansas, Douglas county; April, July, August. New to Kansas.

Schœnomyza dorsalis Loew. Kansas, Douglas county; May, June. New to Kansas.—Colorado, Colorado Springs; July, August. Tabernash; August.

Family SCATOPHAGIDÆ.

Scatophaga furcata Say. Kansas, Douglas county; April; May, at electric light.

Family HELOMYZIDÆ.

Leria pectinata Loew. Kansas, Douglas county; April, at night. New to Kansas.

Family BORBORIDÆ.

Limosina atra Adams. Kansas, Douglas county; July, at electric light on bridge across Kansas river in Lawrence (type).—Colorado, Colorado Springs and Tabernash; August (compared with type).

Limosina evanescens, new species. Kansas, Douglas county; June; June, twilight; July, at electric light. Types: Four specimens; one deposited in the United States National Museum, Washington, D. C., the others in the collection of the University of Kansas. For the Kansas list. Six metatypes: Brookings, S. Dak., collected by Prof. J. M. Aldrich.

In perfect mature condition, such as is presented by most of my examples, the body and legs are almost wholly dullish black, about the only deviation being a tawny color of the legs, especially the middle tarsi, besides some spots on the pleura. Any portion of the body that shines has suffered denudation of its pollinose coating. The dorsum of thorax is clothed with numerous black bristles and short, stubby hairs; front of head also bristly. Scutellum flat, with two long bristles near apex and one on each side near base.

Antennæ wholly black, except very fine grayish pubescence on the long arista, the third joint vertically reniform, with the second joint enlarged against it and fitting into the concavity; both of these joints with bristly hairs.

The metatarsal joint of the hind legs is only slightly incrassate, as the brush-like pubescence underneath makes the size deceptively large. In length it is more than half as long as the second joint, which is also pubescent beneath.

Wings uniformly hyaline, though in some cases with a feeble yellowish tinge, especially in the marginal cell. The second vein joins the costa with a more or less deflecting curve at or slightly beyond half the distance between tip of first and third vein. Fourth vein evanescent, the fifth short appendiculate beyond the discal cell. Third longitudinal vein perfectly straight with one specimen, ending at a point almost

Family BORBORIDÆ.

Limosina evanescens—*continued.*

at extreme apex of wing, but with the other specimens it is very gently curved forward at tip; the costal vein always extends on to apex.

Length, 1.5 mm.

Limosina fontinalis Fal. Kansas, Douglas county; April, at night; July, at electric light; August.—Colorado, Colorado Springs; April, August. Tabernash; August.

Limosina obfuscata, new species. Colorado, Colorado Springs (5915 feet); August, 1906. Type: One female specimen in the collection of the University of Kansas.

Body and legs deep opaque black, excepting tawny color of the tarsi of middle legs, posterior coxæ largely, middle coxæ slightly, all the trochanters, and the knees, also halteres, which are paler, besides some spots or markings on the pleuræ. Where rubbed, however, the surface is shining. Dorsum of thorax clothed with numerous black bristles and short, stubby hairs, likewise the front of the head. Scutellum flat, bearing eight bristles arranged as follows: Two long ones close to the apex and a group of three on each side near the base; the middle bristle in this group is similar to the apical ones, and the one in front is quite short, but the other, which stands behind, is of medium length.

Antennæ wholly black, including the long arista, which, however, has extremely fine grayish pubescence; third joint large and ovate, bearing several bristly hairs. Femora of fore legs ciliate behind, tibiæ of middle legs bristly, short cilia on tibiæ of posterior legs; hind metatarsi not much dilated, two-thirds as long as the second joint, both of these joints with fulvous, brush-like pubescence on under side.

Wings smoky tinged, a faint cloud enveloping apical curve of second vein, which joins the costa considerably more than half the distance between the tip of first and third veins; third vein curves gently forward and terminates some distance before the apex of the wing; all veins black, the fourth being distinctly indicated beyond the discal cell. Edge of first section of costa fringed with bristles, second section distinctly and the third finely ciliate.

Length, 2.3 mm.

Borborus equinus Fal. Kansas, Douglas county; April; April, at night; May, at night and at electric light.—Colorado, Colorado Springs; April. Tabernash; August.

geniculatus Macq. Colorado, Colorado Springs; August.

Sphærocera subsultans Fab. Colorado, Colorado Springs; April.

Family SCIOMYZIDÆ.

Sciomyza nana Fal. Kansas, Douglas county; May, at night.

obtusa Fal. Kansas, Douglas county; June. New to Kansas.

Tetanocera costalis Loew. Kansas, Douglas county; May.

umbrarum Linne (= pictipes Loew). Kansas, Douglas county; April; May, at night. Sedgwick county; September, sweepings in slough-grass in timber along Arkansas river.

Sepedon armipes Loew. Kansas, Sedgwick county; sweepings in slough-grass in timber along Arkansas river.—Colorado, Colorado Springs; August.

fuscipennis Loew. Colorado, Colorado Springs; August.

Family SAPROMYZIDÆ.

Lonchæa polita Say. Kansas, Douglas county; April, May, June, July, September, October (common in windows).
vaginalis Fal. (Not listed in Aldrich's catalogue.) Kansas, Douglas county; June. New to Kansas.
Pachycerina dolorosa Will. Colorado, Green Mountain Falls; July. Colorado Springs; July, August.
Lauxania gracilipes Loew. Kansas, Douglas county; July, twilight. New to Kansas.
Sapromyza innuba? Giglio-Tos. Kansas, Douglas county; April. New to Kansas.
quadrilineata Loew. Kansas, Douglas county; April. New to Kansas.
tenuispina Loew. Kansas, Douglas county; June.—Colorado, Denver; August.
vulgaris Fitch. Kansas, Douglas county; June, twilight; July; July, twilight. Sedgwick county; May and September, in thicket along Arkansas river.—Colorado, Colorado Springs; July.

Family ORTALIDÆ.

Rivellia micans Loew. Kansas, Douglas county; June.
quadrifasciata Macq. Kansas, Douglas county; July.
Camptoneura picta Fab. Kansas, Douglas county; May; June; July; August, twilight.
Melieria obscuricornis Loew. Colorado, Colorado Springs; July, August.
Tetanops integra Loew. Kansas, Douglas county; May. New to Kansas.
luridipennis Loew. Kansas, Douglas county; June.
Pterocalla strigula Loew. Kansas, Douglas county; May, August.
Callopistria annulipes Macq. Kansas, Douglas county; May.
Pseudotephritis cribrum Loew. Kansas, Douglas county; May, August, September.
vau Say. Kansas, Douglas county; June. New to Kansas.
Œdopa capito Loew. Colorado, Colorado Springs; July, August.
Euxesta notata Wied. Kansas, Douglas county; July. Sedgwick county; April.
Chætopsis ænea Wied. Kansas, Douglas county; May; May, twilight; August; August, twilight; October. Sedgwick county; April.—Colorado, Colorado Springs; August.
Seoptera vibrans Linne. Kansas, Douglas county; June. New to Kansas.
Eumetopia rufipes Macq. Kansas, Douglas county; August, twilight and at night.

Family TRYPETIDÆ.

Straussia longipennis Wied. Kansas, Douglas county; May; June, twilight; July, twilight.—Colorado, Colorado Springs; July.
Spilographa flavonotata Macq. Colorado, Manitou; July.
Rhagoletis pomonella Walsh. Colorado, Colorado Springs; August.
Neaspilota alba Loew. Kansas, Douglas county; July.—Colorado, Colorado Springs; August.
Ensina humilis Loew. Colorado, Colorado Springs; August.

Family TRYPETIDÆ.

Tephritis finalis Loew (= "affinis Snow." The label is thus marked, probably by Mr. W. A. Snow himself, thereby indicating that the name he bestowed is a synonym.) Colorado, Colorado Springs; July.

Euaresta æqualis Loew. Colorado, Colorado Springs; July, August.

bella Loew. Kansas, Douglas county; July, August.

festiva Loew. Kansas, Douglas county; August.

tapetis Coq. Colorado, Colorado Springs; August.

Urellia abstersa Loew. Colorado, Colorado Springs; July, August.

actinobola Loew. Kansas, Douglas county; September, at night.—Colorado, Colorado Springs; August.

bisetosa Coq. Colorado, Colorado Springs; August.

pacifica Doane. Colorado, Colorado Springs; August.

solaris Loew. Colorado, Colorado Springs; August.

Family MICROPEZIDÆ.

Micropeza turcana Towns. Colorado, Colorado Springs; August.

Calobata antennipes Say. Kansas, Douglas county; June, twilight.

Family SEPSIDÆ.

Sepsis violacea Meigen. Kansas, Douglas county; June, July. Sedgwick county; April, May.—Colorado, Colorado Springs; July, August.

Nemopoda minuta Wied. Kansas, Douglas county; June, twilight; July; July, twilight. New to Kansas.—Colorado, Colorado Springs; August.

Piophila casei Linne. Kansas, Douglas county; April, reared from larvæ received in infested ham from packing-house in Kansas City, Kan., and bred on both ham and cheese.—Colorado, Colorado Springs; April, July, and August, sweepings.

Family PSILIDÆ.

Chyliza apicalis Loew. Kansas, Douglas county; June, twilight. New to Kansas.

Family EPHYDRIDÆ.

Paralimna appendiculata Loew. Kansas, Sedgwick county; September.—Colorado, Colorado Springs; July, August.

Hyadina albovenosa Coq. Kansas, Douglas county; April, at night. New to Kansas.

Ochthera mantis De G. Colorado, Colorado Springs; August.

Parydra bituberculata Loew. Colorado Springs; April.

Family OSCINIDÆ.

Meromyza americana Fitch. Kansas, Douglas county; July, August.—Colorado, Colorado Springs; July.

Chlorops (Diplotoxa) alternata Loew. Colorado, Green Mountain Falls; July. Colorado Springs; August.

assimilis Macq. Kansas, Douglas county; June; June, twilight; July; July, twilight. Sedgwick county; April.—Colorado, Colorado Springs; July, August. Denver; August.

obscuricornis Loew. Colorado, Manitou; August.

Family OSCINIDÆ.

Chlorops palpalis Adams. Kansas, Douglas county; May, twilight. New to Kansas.
pullipes Coq. Kansas, Sedgwick county; September, sweepings in pear orchard.—Colorado, Tabernash; August. Colorado Springs; August.
scabra Coq. Colorado, Tabernash; August.
unicolor Loew. Kansas, Douglas county; June, twilight. Sedgwick county; September.
variceps Loew. Colorado, Green Mountain Falls; July.

Hippelates flavipes Loew. Kansas, Douglas county; June. Sedgwick county; April. New to Kansas.
plebeius Loew. Colorado, Colorado Springs; August.
pusio Loew. Kansas, Douglas county; June, twilight; August. Sedgwick county; April. New to Kansas.

Elachiptera costata Loew. Kansas, Douglas county; April, May, June; June, twilight. Sedgwick county; April.—Colorado, Colorado Springs; August.
longula Loew. Kansas, Sedgwick county; April.

Oscinis carbonaria Loew. Kansas, Douglas county; April, at night; May, at night. New to Kansas.
coxendix Fitch. Kansas, Douglas county; April; June, twilight. Sedgwick county; April. New to Kansas.
decipiens Loew. Kansas, Douglas county; July. New to Kansas.
nudiuscula Loew. Kansas, Douglas county; August.
pallipes Loew. Kansas, Douglas county; June, August.
soror Macq. Kansas, Douglas county; May, June. New to Kansas.
variabilis Loew. Kansas, Douglas county; June, twilight; July.

Family DROSOPHILIDÆ.

Drosophila (Scaptomyza) adusta Loew. Kansas, Douglas county; May, at night; August. New to Kansas.—Colorado, Colorado Springs; August.
amœna Loew. Kansas, Douglas county; April. New to Kansas.
ampelophila Loew. Kansas, Douglas county; August, October, November; noxious in kitchen and other rooms of house wherever fruit and cider were exposed.—Colorado, Denver; August; attracted to exposed fruit on table in house, both day and night.
funebris Fab. Kansas, Douglas county; May; June; July; July, twilight; October; November, in kitchen. New to Kansas.
(Scaptomyza) graminum Fal. Kansas, Douglas county; April; April, at night. New to Kansas.

Family AGROMYZIDÆ.

Phytomyza diminuta Wlk. Kansas, Douglas county; May; June, twilight and at night. New to Kansas.—Colorado, Denver and Colorado Springs; August.

Ceratomyza dorsalis Loew. Kansas, Douglas county; May, at electric light; June. New to Kansas.—Colorado, Colorado Springs; August.

Family AGROMYZIDÆ.

Agromyza æneiventris Fal. Kansas, Douglas county; July. New to Kansas.
parvicornis Loew. Kansas, Sedgwick county; April. New to Kansas.
Desmometopa latipes Meigen. Kansas, Douglas county; June. New to Kansas.
m-nigrum Zett. Kansas, Douglas county; June. New to Kansas.
Ophthalmomyia lacteipennis Loew. Kansas, Sedgwick county; August, in windows of farmhouse. New to Kansas.

TABULATED SUMMARY OF FAMILIES AND SPECIES, INCLUDING VARIETIES.

NAME OF FAMILY.	Total number of species.	Species taken in Kansas.	Species new to Kansas.	Species taken in Colorado.	Species taken in both Kansas and Colorado.
Tipulidæ	4	5	2	2	2
Psychodidæ	1	1	.....	.....	.....
Chironomidæ	37	35	31	6	4
Culicidæ	*15	14	6	4	3
Mycetophilidæ	9	7	3	2	.....
Cecidomyidæ	†	.....	.....	.....	.....
Bibionidæ	9	9	5	1	1
Rhyphidæ	2	2	2	.....	.....
Stratiomyidæ	8	6	2	4	2
Tabanidæ	7	5	1	2	.....
Leptidæ	7	3	.....	5	1
Bombyliidæ	24	6	.....	20	2
Therevidæ	2	2	1	.....	.....
Sceneopinidæ	1	1	.....	.....	.....
Mydaidæ	1	1	.....	.....	.....
Asilidæ	26	15	7	13	2
Dolichopodidæ	34	26	13	14	6
Empididæ	14	8	3	8	3
Lonchopteridæ	2	1	1	1	.....
Phoridæ	6	5	5	1	.....
Platypezidæ	3	3	2	1	1
Pipunculidæ	7	6	3	2	1
Syrphidæ	35	20	7	20	5
Conopidæ	3	2	.....	1	.....
Œstridæ	1	1	.....	.....	.....
Tachinidæ	39	25	9	16	2
Dexiidæ	2	1	1	1	.....
Sarcophagidæ	1	1	1	.....	.....
Muscidæ	13	10	.....	11	8
Anthomyidæ	7	7	6	4	4
Scatophagidæ	1	1	.....	.....	.....
Helomyzidæ	1	1	1	.....	.....
Borboridæ	7	4	1	6	3
Sciomyzidæ	6	5	1	2	1
Sapromyzidæ	8	7	4	3	2
Ortalidæ	15	13	3	3	1
Trypetidæ	15	5	.....	13	3
Micropezidæ	2	1	.....	1	.....
Sepsidæ	3	3	1	3	3
Psilidæ	1	1	1	.....	.....
Ephydridæ	4	2	1	3	1
Oscinidæ	21	16	7	9	4
Drosophilidæ	5	5	4	2	2
Agromyzidæ	7	7	7	2	2
Totals (44 families)	416	299	142	186	69

*Syn. 1?. †Undetermined.

NOTE.—My lists as presented give all the results obtained in the orders treated so far as the specimens have been identified up to this time. A considerable amount of material yet remains to be reported upon, especially in the order Hymenoptera, and, as additions are constantly being made, the task of making known the facts will be unending, if carried on.

APPENDIX.

SOME NEW SPECIES OF KANSAS CHIRONOMIDÆ.

By O. A. Johannsen.

Among a lot of Chironomidæ submitted to me for identification by Mr. E. S. Tucker, of the museum of the University of Kansas, were several specimens which could not be classified with any previously described species, and are therefore presented here as new.

Bezzia elegantula, n. sp.

Female.—Head and proboscis yellowish, the tip of the latter and the palpi fuscous. Eyes nearly contiguous over the base of the antennæ. Antennæ, including the large basal joint, yellow. Thorax deep yellow, subshining, humeri and pleura with a grayish bloom; dorsum with four rows of fine setæ, also a marginal row near the base of the wing. Abdomen yellowish brown, posterior segments a little darker, posterior margins of all the segments pale yellow; venter yellow, posterior margins of the segments on the sides black. Legs, including coxæ, yellow; tips of hind femora, bases of hind tibiæ and tips of all tibiæ brown; tips of all tarsal joints also narrowly brown. Claws very unequal, under side of fifth tarsal joint of all the feet with one or two pairs of stout, blunt, black spines; hairs of all tibiæ and tarsi black. Wings bare, pale, veins yellow; the tip of the radius ends about one-fourth of the wing length from apex; the media petiolate, the stem but little shorter than the cross-vein. Halteres yellow, with pale green knob. Length, 2 mm. Collected in July at electric light on bridge across Kansas river at Lawrence, Douglas county, Kansas, by E. S. Tucker.

The homology of the Ceratopogon wing venation given on plate 17, figures 13 to 16 (Bulletin 86, New York State Museum), I now believe to be incorrect. What is marked R_{2+3} should be R_{4+5}, while those marked R_{4+5} and M constitute the anterior and posterior branches of the media.

Ablabesmyia aurea, n. sp.

FEMALE.—Head black; proboscis and palpi reddish yellow; antennæ wholly yellow with yellow hairs. Thorax, including pleura, sternum, metanotum, and scutellum, dull black; humeral spots yellowish; thoracic hairs pale. In one specimen the scutellum is brownish and there is an indication of two slender yellow lines upon the mesonotum. Abdomen wholly golden yellow. Coxæ golden yellow, legs wholly pale yellow. Wings, their veins and hairs with a yellowish tinge; R_1 connected with R_3 a short distance before its tip by the oblique R_2. Halteres yellow. Length, 2.5 mm.

Collected by E. S. Tucker, at Lawrence, Douglas county, Kansas, in July, at electric light on bridge across Kansas river.

Chironomus lucifer, n. sp.

MALE.—Head and mouth parts testaceous, upper surface of proboscis infuscated, basal joints of antennæ yellow (flagellum broken off). Thorax yellowish, more testaceous in some lights, somewhat shining, the dorsal stripes wide, deep brownish black, the median one prolonged from collar to scutellum, the laterals abbreviated anteriorly but extending to the root of the wing posteriorly; the humeri conspicuously yellow; metanotum and pectus brownish black, scutellum yellowish. Anterior segments of the abdomen grass green, almost unicolored, the last three segments broadened, infuscated. Genitalia small and slender, resembling those of *C. modestus* (plate 32, figure 8, Bulletin 86, New York State Museum), both superior and inferior lobes having enlarged ends, but the latter with more conspicuous setæ. Legs yellowish with a greenish tinge; base of fore femora, tips of all tibiæ and all tarsal joints more or less infuscated, some of the apical joints wholly infuscated. Empodium brush-like, as long as the claws. (Fore tarsi broken off.) Wings hyaline with a yellowish tinge, veins yellow, cross-vein not darkened; cubitus forks slightly distad of the cross-vein. Halteres pale yellow. Length, 3 mm.

FEMALE.—Differs from the male as follows: Antennæ yellow, apical joint black; dorsal thoracic stripes more confluent; abdomen wholly yellow. Legs yellow, apical half of

the fore tibiæ and tips of the tarsal joints brown, the last three joints of the fore tarsi wholly brown; the paler portion of the tarsi whitish. Fore metatarsus one-third longer than its tibia.

Taken at electric light, in July, on bridge crossing Kansas river at Lawrence, Douglas county, Kansas, by E. S. Tucker.

Chironomus flaviventris, n. sp.

MALE.—Resembles *C. flavus*, but differs in having darker thoracic stripes. Head testaceous; antennæ yellow, basal joint testaceous, mouth-parts yellow. Thorax, including scutellum, metanotum, sternum, and pleura, pale brown, the humeri and the space between the dorsal stripes more yellowish. Abdomen pale yellow, apical joints slightly darkened. Genitalia yellow, slender, the lateral arms lanceolate. Legs wholly pale yellow. All hairs of abdomen and legs pale yellow. Fore metatarsus twice as long as its tibia. Wings cream white, veins colorless. Halteres pale. Length, 2.5 mm.

FEMALE.—Like the male, but shorter, stouter, and with broader wings. In two specimens the thoracic stripes are dark brown.

Collected at Lawrence, Douglas county, Kansas, in July, at electric light on bridge across Kansas river, by E. S. Tucker.

Chironomus attenuatus WALKER.

Two female specimens, which I doubtfully refer to this species and which agree very well with Walker's description, may be further characterized as follows: Antennæ yellowish; humeri, space between the thoracic stripes and the scutellum yellowish gray; posterior margins of the abdominal segments more or less distinctly light gray. Fore metatarsus one-half longer than its tibia; knees and middle and hind tibiæ brownish.

Collected by E. S. Tucker, at Lawrence, Douglas county, Kansas; June; July, at electric light; August.

Metriocnemus exagitans JOHANNSEN.

The description of the wing given in Bulletin 86, New York State Museum, on page 303, as also the figure 4, plate 31, was made from a defective wing. Line 3 from the bottom of the page should read: "R_{4+5} ends some distance from the tip of the wing." The female resembles the male, but is shorter, stouter, and has broader wings.

Several specimens from Lawrence, Douglas county, Kansas; collected by E. S. Tucker; March, April, and April at night.